

AT ROCHESTER BEFORE THE FLIGHT

A J Cobham

A B Elliott

AUSTRALIA AND BACK

BY

SIR ALAN COBHAM, K.B.E.

WITH A FOREWORD BY
THE RT. HON. S. M. BRUCE
PRIME MINISTER OF AUSTRALIA.

A. & C. BLACK, LTD.
4, 5 & 6, SOHO SQUARE, LONDON W 1.

1926

AUSTRALIA AND BACK

CHAPTER I

ROCHESTER TO BASRA

Familiar as I may be with long-distance flights around the world, the idea of flying from England to Australia and back with a seaplane seemed to offer a new little adventure—something different to anything that I had attempted before. The reason for taking a seaplane on this flight was chiefly one of protection, because we had decided to fly right through the heart of the monsoon in India and Burma, both on the outward and return trips, and from my previous experience over these countries, when piloting Sir Sefton Brancker to Rangoon and back, I knew how difficult the country would be with an aeroplane. From Calcutta to Australia it is simply impossible to land anywhere but on a specially prepared aerodrome. I did not like to contemplate being caught out in a severe monsoon storm over such country—over tropical jungle, with no prospects of landing—and so decided that although a seaplane has many disadvantages as compared with an aeroplane, it would certainly be a far more practical and safe proposition.

I knew that the coast-line of Burma and Malay abounded in sheltered bays and inland creeks and in these I imagined I could take refuge if a severe monsoon storm should overtake me.

I have always maintained that a flight of this nature is half accomplished on the day we start from home, for the success of a flight does not merely depend, as most people imagine, on the trivial matter of handling the control lever and rudder bar in the pilot's cockpit. I would say that the actual piloting is just about fifteen to twenty per cent of the job, while the backbone of the successful flight is the ground organisation that is put in before the flight is commenced and throughout the journey.

After the return from the Cape flight I set to work immediately to organise our flight to Australia, but before even the most elementary organisation could be put down I had to satisfy those who were going to help in my scheme that I had sound financial backing. The finding of finance is no easy business, for no matter how heartily people may congratulate one on the success of a former flight, so many of these same people can readily find an excuse for being unable to support one financially on the next flight, and so there was a severe uphill task to get the backing for this enterprise. But after the first few promises I set to work to get people interested all along the route.

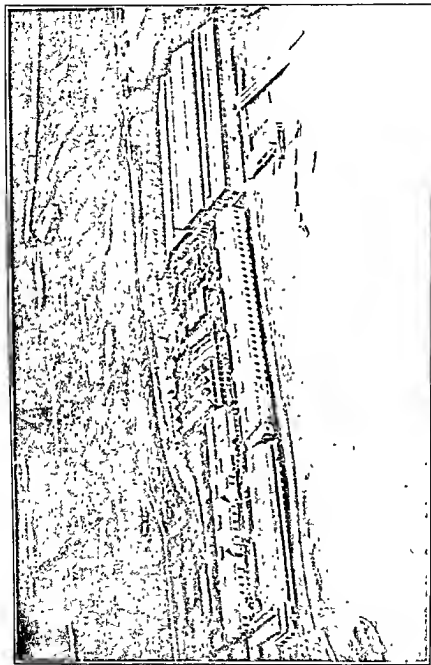
It must be remembered that ninety in every hundred we met at the various landing-places between London and Australia had never seen a seaplane before, and even a greater percentage than this knew little or nothing about aircraft and what was required for the safe landing, mooring-up and taking off again of a seaplane. Therefore I had to depend entirely upon the willingness of the various authorities at the landing-places I chose on the map, to put down moorings and attend to my requirements from instructions and information which I gave them by letter and cable. So that the entire organisation of the flight was done by cable and correspondence. This meant a tremendous amount of work, and as there were piles of letters to attend to in the clearing up of the Cape flight, I found myself in a somewhat exhausted condition by the time we were finally ready to start on the Australian venture some three months later.

After postponing the date of our departure three times for various reasons, on a fine morning on the last day of June I was called at 4 a.m., as we were going to endeavour to fly from Rochester to Naples in the day. I had said goodbye

to my wife the day before and had motored down in the late afternoon to Rochester and slept the night at the "Bull" hotel, well-known to Dickens readers. Getting up in the dark was never my strong point, but I knew that if we wished to get a move on with the flight before us I should have to acquire the habit, because the early hours in the heat of the tropics are the best for flying. I was greatly surprised when I arrived at Short's works to find that a merry little party of my friends had motored down through the night from London to see me off and to my joy my wife, instead of going to bed, had sat up with a party at home and then motored down with them to Rochester.

There was not a breath of wind to help our get-off and the water was dead calm, but somehow we managed to get unstuck and by 5 a.m. we were in the air, waving good-hye to the sporting little crowd who had turned out to see us off. So many of my friends seemed shocked at the idea of flying across France in a seaplane. Personally I fail to see how this was an extraordinary prospect, because it would be possible to land on various rivers such as the Seine and the Rhone, and even had we been forced to come down on land I do not think that we should have been in great danger of personal injury, although we might have ruined our floats. On the other hand my friends would not have been in the least disturbed had I contemplated flying with an aeroplane miles along the Mediterranean coast line, where it would have been impossible to land the machine along the rocky shores except in the sea itself, which would have meant a complete "write off" to the aircraft and a most unpleasant experience for the personnel.

When I left Rochester I was very happy to think that I had a pair of floats beneath me, as the majority of the route from England to Australia would be along coast-lines, over the sea, or above rivers. Soon after leaving Rochester we passed over Maidstone, for we were on a direct compass course to Rouen, and as we left the shores of England in the region of Hastings and passed out over the Channel I had a feeling of safety and contentment such as I had never experienced before when flying over the Channel. I was not a seaplane pilot and, with the exception of about four trial flights during the week previous to our departure, I had never flown a sea-



THE SEAPLANE WORKS AT ROCHESTER

plane before ; likewise Elliott, my engineer who had accompanied me on so many flights, including the one to Rangoon and back and the one to the Cape and back, knew little or nothing about seaplanes. However, I was convinced that a seaplane was the correct craft in which to fly to Australia and, despite all the discouragement I received regarding the difficulties of handling a seaplane, I decided, in view of my intimate knowledge of many seaplane experts, that the difficulties were exaggerated and that I should find no really great difficulty in managing a hydroplane.

Before going further with the story I must explain that the maximum permissible load of the De Havilland 50 aeroplane is four thousand two hundred pounds, but owing to the extra weight of floats and the additional petrol and equipment necessary for this flight, my maximum load was now in the region of five thousand pounds. Despite this thousand pound over-load the machine not only got off well but flew perfectly the whole time.

After about forty minutes flying, the coast of France came into view and then we continued our course until we hit Rouen, where we turned south-east, flying along the course of the Seine towards Sartrouville, a French seaplane base on the Seine north of Paris. It had been arranged that we should land here to refill and then continue our journey on to Marseilles, but as my machine carried about one hundred and fifty gallons of petrol, which should have been sufficient for a safe seven and a half hours flying, I estimated that with favourable winds I ought to be able to reach Marseilles non-stop on my petrol capacity if I cruised at about one hundred miles per hour. At this speed our petrol consumption with the Siddeley-Jaguar engine was about eighteen gallons an hour, and although on paper the six-hundred-and-seventy-mile journey from Rochester to Marseilles looked quite safe with a big margin of petrol, in reality there was none too big a margin, especially if we met with a head wind. Therefore all the way from Rouen to Paris I was trying to calculate on the writing pad in my cock-pit whether or not I could pass over Sartrouville without landing to refill, and was endeavouring to do simple proportion sums on the lines of "If I can do 220 miles in so many minutes, how long will it take to do 670 miles ? etc., etc.," Finally I decided that I would carry on, as it was

fairly certain that the gentle north-west wind would prevail throughout the flight and I should reach Marseilles in good order. We passed over Sañtrouville, over Paris and down the Seine towards Fontainebleau, and then over open country down the Loire for hundreds of miles until we came to St. Etienne. All along this route I was looking ahead to see if heavy cloud-banks were forming, because these would have made the crossing of the mountains over into the Rhone valley somewhat difficult. However, it was a perfect day; the country beneath looked simply delightful, and at 4,500 feet we passed round Mont Pilat and flew down into the Rhone valley.

I have always noticed in the past that atmosphere and climate change suddenly south of the gorge of the Rhone and about eighty miles north of the Mediterranean. The variable, misty, cold weather of northern Europe suddenly ceases and one breaks into a beautiful warm, clear, sunny atmosphere. We landed at Marseilles after six hours and forty minutes non-stop flight from Rochester, and came to rest on a perfectly ideal seaplane base,—the Berre Lake on whose shores the aerodrome of Marignane has been built, thus forming a perfect combined seaplane and aeroplane base. The lake was ideal because there was no current and no tide, and yet a fair breeze blowing to assist one in the get-off and to avoid a dead calm water. We soon came alongside the jetty and were ready to fill up immediately, because we still had to contemplate another four-hundred-and-fifty-mile flight to Naples, but we were dismayed to discover that our petrol was stored at least two miles away! It is true that they were not quite sure of the time of our arrival, although they knew we were coming, but at the same time I cannot imagine why petrol for a seaplane should be stored two miles or more away from the base. However this little difficulty was soon overcome, and after a small delay we were in the process of filling up. Curiously, for the first time in my experience I was not enthusiastic about my new venture and from the moment of starting I was miserably depressed—possibly homesick—and suffering from both mental and physical exhaustion. Perhaps we had overworked ourselves in the preparation of the flight, although we had always done that in the past and generally started our ventures on the verge of a nervous breakdown, depending upon the exhilaration of flying away into new atmospheres to pull us together

and renew our vitality. After a hasty cup of coffee, roll and butter and some cheese, we left our kind friends at Marseilles and taxied out into the open lake and took off.

There was a feeling of security in the new order of things when we opened out and simply beaded into the air with no worry about the boundaries of the aerodrome or holes that might be in its surface, or the fact that the tyre might burst, or that we must get off the ground before we came to the rough part, and that telegraph wires had to be cleared at the far end, and such like little distractions that have to be considered when taking off from the average aerodrome. Instead we had miles of open rippling blue water before us, and with no worry at all we just opened out and away, until the machine had gathered up sufficient headway to lift her on to the first step of the floats and then gradually, as we gathered speed, we had ample time to ease the control lever gently back and lift the craft smoothly off the water, and so on into the air and away upon the new journey.

Our course from Marseilles to Naples lay via the Straits of Bonifacio between Corsica and Sardinia and then on straight over the sea again to the Italian coast. In the past my trips along the Mediterranean had always been round the coast of the Riviera by way of Genoa and Spezia to Pisa, where one always ran the risk of meeting severe bumps, especially if a northerly wind were blowing off the Alps. But now we were going to make a direct cut across the open sea and, as I have always found, no matter how strong the wind may be blowing, violent bumps are rarely met when one is well away from the land. There was no difficulty in hitting upon Corsica or finding our way between the two islands, but as we left Corsica and Sardinia behind us on the port and starboard there was a little worry as to whether we should arrive at Naples before dark. Continually we kept looking behind to see how high the sun was in the sky and then again at our watches to check up how much more daylight we were supposed to have. Then again I started calculating on my writing pad, after measuring up in a most inaccurate manner with my fingers on the map the distance that I had to run.

One drawback in flying from west to east on a long flight is that one loses daylight each day to the extent of about one hour per thousand miles throughout the whole flight. The time

question was always muddling because, apart from the fact that sun-time was naturally different at every place we landed, each town or country had its own local time, and then again some had special summer time, and between the lot one could easily be misled. I quickly discovered that the only way to be safe was to ascertain from my official documents exactly how much daylight existed in each particular latitude and then make a note of the time at which the sun rose. From that I could judge the time at which it was going to set by my own watch. We floated into Naples about half an hour before dark, for the sun had already gone down.

The seaplane base at Naples is on the mainland side of the little island of Nisida, which is nothing more than a giant rock towering up out of the water about three hundred yards from the mainland. On the top of this rock a prison was built centuries ago and it has always been considered a stronghold; and now on the leeward side of this little island they have built a seaplane base. I had been warned before leaving London of telegraph wires that run from the island to the mainland, but even so I only missed them by a matter of a few feet, because in the dim light of the evening it was impossible to distinguish these wires which were literally hundreds of feet in the air and right in the main fairway of any aircraft coming in to land on the sheltered waters. In fact they would have made a perfect trap in war-time if bait had been put down in the harbour to entice enemy machines.

The moment we landed, our Italian friends came out in a motor launch and took us in tow and immediately started to make preparations for our re-fuelling. Elliott and I were out to put up as good a show as possible, and although we were very tired and had completed the journey from London to Naples in a day for the first time in history, we began to get filled up immediately with the aid of a lamp, by the usual antiquated and obsolete method of pouring petrol out of cans through a hole in the tank. I have often thought how aircraft designers struggle with great aerodynamical problems both in design and construction to obtain possibly one or two miles an hour extra speed out of an aeroplane; this extra bit of speed is generally accomplished with much sacrifice and expense in cost of production, and finally brings a machine into port twenty minutes sooner, then through in-

efficient, primitive filling-up methods hours will be wasted in re-fuelling. And yet any third-rate engineer could think out a practical and simple device that could fill even the biggest of tanks in the matter of a few minutes.

In a somewhat exhausted condition we stepped aboard the little rowing boat and went ashore on the island for a few moments while I signed up for the petrol received, and then readily acceded to the advice of my agent to go over to the mainland to have some dinner. We were soon in a little pinnace speeding across the bay to a small restaurant on a pier which jutted out over the beach, whose lamps we could see in the distance. The sky was full of stars, but somehow I could not enjoy the situation. It is true we both felt a little faint from our day's exertions and lack of food, but on top of it all I was depressed and could not understand why. However, we were thirsty—very thirsty—and rather disgusted when they offered us heavy red wine to quench the said thirst, but we soon diluted it with plenty of soda-water, ate our meal, and then motored up into the town of Naples for the night.

Our host took us to his apartment, which was a very spacious one, being the top flat of a converted ancient palace whose foundations are washed by the waters of the Mediterranean. Before going to bed we looked out of our lofty windows right over the Bay of Naples. Elliott was cheerful and full of the spirit of adventure. I, on the other hand, was simply exhausted, and amid these wonderful surroundings could only find it in my heart to regret that I should have to be up before dawn next morning, ready to push on with the next stage of our flight to Athens. I felt I wanted to linger for some unknown reason; I had no spirit left in me with which to contemplate the thirteen thousand odd miles that separated us from Melbourne. Our kind host, as he promised, awakened us the following morning at 4.30, but to my dismay I found that I was in no condition to carry on. I had a bad head and felt so weak that I hardly deemed it advisable to get up, although by about six o'clock I had mustered sufficient energy to dress. In this rather shaky condition I journeyed in the car down to Nisida Island. There were one or two minor engine adjustments to attend to, and as we had wasted a certain amount of valuable time I decided that I would rest until about 11 o'clock and content myself with making Athens only that day,

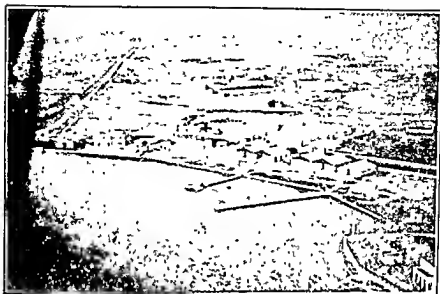
view. On this flight I seemed to derive a great deal of satisfaction from the fact that I had chosen a seaplane for the journey. Although this was about the fifth time that I had flown over this route, all my previous expeditions had been by aeroplane, when I had the constant thought in my mind that I was depending entirely upon my engine, for landing along that rocky coast-line would be a difficult feat indeed. But here with a seaplane one felt tempted to alight and rest awhile on these sheltered waters amid such charming scenic surroundings. All the way along from Corfu to Athens every rock seems to play some part in the history and legends of ancient Greece. At last, just before sunset, Piræus came into view and beyond was Phaleron Bay where we were going to land by the Greek Air Force seaplane base. While circling above this, we had magnificent views away to the north of Athens with the Acropolis standing out high on its rocky prominence, although on this occasion we troubled little about photographing the scene, as it was necessary for us to get down and refuel before dark.

On nearly every flying expedition in the past I had always considered myself the strong man of the party, but I must confess that at the start of our Australian trip I was done, and on landing at Athens I simply had to hand over the whole show to Elliott, who fortunately appeared to be very fit and cheery. Major Brock, the general manager of the Blackburn Aeroplane Company in Greece, whose factory is at Phaleron, very kindly acted as my host. When I woke on the following morning I realised that I was not in a fit state to proceed on the journey. The doctor advised rest, as I was suffering from exhaustion, for it appeared that I was too run down for even the exhilaration of flying to revive me. And so we stayed a day in Athens while Elliott amused himself by inspecting his machine and engine from end to end and getting a little more familiar with working on the craft while she was afloat, which is a new experience as compared with working on the machine in an aerodrome. After a day's rest I felt much better, and so in the early morning we attempted to get off over the rollers in a dead calm and make for Leros, but found that owing to our very heavy load this was impossible. On talking the matter over with the Commanding Officer of the flying school, he advised us to wait until about 9 o'clock when he said the

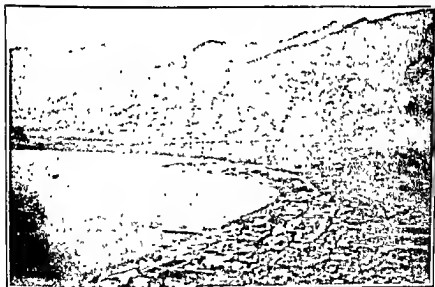
wind would change its direction, the rollers would temporarily cease, and just as the new wind sprang up would be our chance to get off again. So we waited, and as everything worked to plan, we found ourselves in the air once more heading on a compass course direct for the island of Leros.

Leros belongs to Italy and is a delightful spot in the Aegean Sea some forty odd miles from the mainland of Asia Minor. Owing to its rugged coast-line there is a lovely inland bay whose narrow entrance shelters it against all rough weather. I always think the Aegean Sea in clear weather, with blue sky and brilliant sunshine, is perhaps one of the most beautiful sights in the whole world, especially when seen from aircraft at an altitude of a thousand feet with one's back to the sun. The water is a deep royal blue except in the shallows near the coast-line, where are found varying shades of turquoise blue right up to a silver sand beach. We covered the odd two hundred miles in just under two hours and then glided into the sheltered waters of the seaplane base at Leros, where we found our Italian friends waiting to receive us.

I think that Leros was the most ideal seaplane base of the whole trip; no violent wind, no tide and no current. Under these conditions we had perfect control, and thus we were able to bring our craft gently up to a little wooden jetty and moor ourselves just as though we were handling a canoe. The water was so clear that we could see easily to the bottom through a depth of twenty feet. In fact Elliott was of opinion that if he could only keep his eyes open under the water there was sufficient light to swim under the floats and inspect the bottom of them. We quickly took on our extra petrol and then went ashore to have lunch with the Commanding Officer under a rush grass awning. I remember, after the usual aperitif of a glass of vermouth, we had a delightful meal. The inevitable macaroni was followed by a dish of baby octopus—quite a usual thing in this part of the world—which afforded Elliott no end of amusement. One felt one wanted to linger in this delightful spot, but as we had a big job before us we had to get on, and so early in the afternoon we again got into the atmosphere and headed eastwards along the southern coast of Turkey for Alexandretta, our next stop. The last time Elliott and I had visited Alexandretta was when I was piloting Sir Sefton Brancker to Rangoon and back. On that occasion



SEAPLANE BASE AT ATHENS



ALEXANDRETTA

there had been a strong east wind blowing that caused violent down currents off the mountains, so that when we came on the leeward of this range just in front of Alexandretta we had been subjected to a most violent lumping, when both the General's and Elliott's head had hit the cabin roof more than once. However, this time there was a gentle wind from the west, and we arrived over the bay of this somewhat important port in the north-east corner of the Mediterranean in perfectly calm atmosphere with delightful smooth waters to land on. In my advance instructions I had requested the harbour-master to put down a buoy for us that should be identified by a red flag, but on arriving over Alexandretta I observed that there were several buoys with several red flags so that I hardly knew where to select my mooring. I ultimately chose the southern end of the open bay. My old friend Mr. Catoni was out in his new pinnace ready to meet us and I discovered that we should have landed on the other side of the bay. However this did not matter much and he took us in tow, and thus we sped right over towards the harbour. It was our first experience of being towed through a narrow gateway, and one always imagines on such occasions that wing-tips are going to touch the quay-side, and one has villanous feelings towards any boat which comes within several hundred yards of the aircraft. We arrived right inside the harbour without any mishap and then proceeded to get filled up, and later—after dinner—spent a happy evening recalling memories of the time when we were there two years before.

On the following morning we discovered, as we flew southward and eastward, that we were getting into a more rarified atmosphere, inasmuch as we had greater difficulty in getting off the water, although the conditions were more or less ideal. Our metal propeller was designed to give the maximum performance in the air at cruising speed so that with a very low petrol consumption and with very little load on the engine we were able to cruise with ease at one hundred miles per hour, but somehow we experienced difficulty in getting the seaplane off the water, for great efficiency is needed with a propeller in order to get up the primary speed. I have noticed that it takes every bit of power to get up the first thirty-five or forty miles an hour on the water with a seaplane, and here we found our propeller was hardly suitable. It must be known that

as the aeroplane gathers speed, and the engine revolutions increase, so does the power of the engine increase. Now we found our propeller was unsuitable for this situation and therefore we decided to change over to the spare propeller that we carried under our machine, which happened to be of a different pitch. We had had two attempts at getting off and, rather than labour our engine unnecessarily over the waters, we just came back to our mooring and set to work to make the necessary change. During this procedure the British Consul circled round our craft on his pinnacle. He had on board quite a merry party of visitors, including the French Governor of Alexandretta and many other important people. Evidently he gave instructions to the man at the wheel to cruise round the seaplane, for I noticed that the pinnacle, which had just come out from home, was moving continually round us in a complete circle while we changed the propeller. Apparently the Consul was engrossed in conversation, for the pinnacle continued to go round and round the seaplane without cessation, until finally I noticed that there were one or two urgent parleys on board with the Consul, after which it began to steer for the harbour. I learnt afterwards that this incessant circling round our craft had been too much for most of the guests on board, inasmuch as many of them were prostrate and were undergoing all the worst agonies of a bad sea voyage. The curious thing was that the Consul seemed oblivious for such a long time to the general state of affairs!

With our propeller changed we discovered we had a much better static thrust and, although our propeller was not quite so efficient in the air, we were able to get off the water with ease. Thus we left Alexandretta, climbed over the mountains and flew over the land eastwards towards the Euphrates, whose course we were going to follow down to Baghdad. We took off from Alexandretta in moderately cool weather and climbed to five thousand feet and then passed over the land for a hundred miles towards the river. On our way we went right over the French military aerodrome where I had landed on several previous occasions, and away to the south we could see the ancient bazaar town of Aleppo. The visibility of this part of the world is generally good and so we saw the Euphrates on the horizon about thirty or forty miles ahead. Then came the rather long and weary flight when we followed its

banks for about four hundred miles. Passing over Rakka, the French military outpost, to Deir-ez-Zor and so on down into Iraq, over Ana with its wonderful palm groves and densely cultivated river islands, on towards Ramadi. I have always been impressed by the extraordinary system of irrigation on this part of the river where the river banks are twenty or thirty feet high and there are giant water-wheels which are worked by huge paddles. The force of the current is sufficient to turn the wheels, and on the back of every paddle there is a small pot which enters the water and is lifted high, tipping its contents into a channel which runs away on to the bank above, thus irrigating acres of land which would otherwise be desert.

At Ramadi we left the course of the Euphrates and flew over the sixty odd miles of land towards the River Tigris, and on this flight, as on many others in the late afternoon, we feared not reaching our destination before sunset. I sent a message through to Elliott, because in my cockpit behind the cabin I am all alone and unable to seek the advice of a second person, and so in order to verify my own ideas on the subject I asked him how much more daylight we could reckon on. Elliott, with a very knowing air and a quizzing look at the sun, estimated it at an hour and a half, which was comforting although I knew it to be very optimistic, but it certainly lessened my worries for the time being regarding our safe arrival before dark. When Baghdad came into sight we glided down from a moderately cool atmosphere of five thousand feet towards the river Tigris and then we realised that we had come right into a temperature vastly different from the one out of which we had taken off. As we glided down it was like sinking into an oven, or suddenly diving from the cool atmosphere of the open sea into the hottest room of a Turkish bath. When we were about five hundred feet from the ground I thought we should be stifled, and later I discovered that it was 110 in the shade on that day, so no wonder! The fumes of the engine on the glide seemed to radiate back, if one put one's head over the side of the cockpit, like flames in one's face. We got down very nicely on the river, and the wind was blowing conveniently so that we could taxi ahead into it up stream straight on to our mooring. Elliott was successful in getting hold of the buoy first shot. On all these occasions

to fly that day we must get off before the great heat of the sun came up. At Baghdad Elliott had many old friends in the Air Force—curiously, several school pals—and they all seemed so keen and interested in the flight that there were at least half a dozen on the seaplane, giving a hand either at filling up or cleaning the plugs, or any job that might assist Elliott. I shall always have distinct memories of sitting on board the gun-boat feeling very sorry for myself, wondering whether I ought to go back to bed or whether I ought to fly on. At last I decided that I should be all right if I could once get in the air, although only a few moments before I had almost made up my mind to take another day's rest. Once in the air we were soon heading down the Tigris towards Bushire in the Persian Gulf, which was our next stop, five hundred miles away.

While we were cruising along I came to the conclusion that one of the great problems of the new age of world aviation would be that of fortifying the human being against the sudden changes of temperature and atmosphere. For example, if we are to fly, as it is anticipated, within the next few years from England to India in a matter of four days, then something must be done to protect the passenger against the sudden change of temperature. For instance, a person might leave London on a cold April morning with a temperature somewhere in the fifties, and after a flight of about three days in moderately cool air at a fair altitude, find himself descending at Basra into a temperature of 110° in the shade or even more. This state of affairs would naturally be a big tax even on a robust constitution, and it might be fatal to a weakling. So here is a problem for our doctors, to find some means of fortifying the human system against such violent changes. Of course for the next few years air routes will be sufficiently slow to make the change of temperature fairly gradual, so that the would-be traveller of to-day need have no fears in this direction.

After we had crossed over again from the Tigris to the Euphrates and had flown about one hundred and fifty miles I noticed we were getting into a sand-storm region, and a little later we were forced to descend from a comfortable altitude, lower and lower, owing to the thickening sand-storm, until we were flying but a few feet above the river bank, in

order to find our way in the blinding dust. From my experience I know that these sand-storms rise to a great altitude, and even if one could fly above them it would be impossible to see the ground beneath and equally impossible to find one's way over a more or less trackless desert. Moreover on a compass course the risk in arriving at one's destination at a high altitude with a thick dust storm raging beneath would be great, for it would be a decided adventure to come down through the blinding dust and find one's exact whereabouts. Therefore rather than take any of these risks we flew low and followed the bank of the river, and as we were in a seaplane fitted with floats we carried on with a feeling of absolute safety, with the knowledge that we could land on the water of the river at a moment's notice should the dust ever become so thick that there was not sufficient visibility for us to carry on. At last this state of affairs occurred and, spotting a native police hut on the bank of the river, I landed on the water near by, quietly turned our machine and gently beached her on the mud bank. When the propeller stopped, Elliott hopped ashore, taking with him the anchor which he planted deep in the soft earth inland, well away from the bank, remarking as he did so that he thought this was real sound, practical aviation. At the time I was feeling none too energetic and a little worried and depressed at having the original schedule of our flight so changed. Of course we were gathering fresh information and it was all new experience, which was what we were really out for, but even so I could hardly satisfy my anxieties with these observations. Elliott was very cheerful, and soon we had found shelter from the dust and heat in the big mud police hut where the natives had very kindly taken our mosquito nets and rigged them up over rough beds for us to lie on. Then at 9 a.m. in the morning we found ourselves under our nets endeavouring to sleep. Before settling down I had sent a native off on horseback to the nearest telegraph station so that our whereabouts could be notified to the R.A.F. Head-quarters at Baghdad. I suppose we must have rested for about an hour when the native police brought us delicious hot tea, Russian style, and after that another fellow brought us a huge melon with ample sugar, much to the delight of Elliott! And so we remained with these kindly

folk until about 1.30 or so in the afternoon, when the dust storm lifted a little and I thought we might have another shot at reaching Basra instead of Bushire that day.

All went well for about the first half-hour of our flight, but as we were nearing the beginning of the great swamp area above Basra we ran into another dust storm, and so we continued to fly low. The River Euphrates enters the Hammar Lakes just above the town of Suke Shuyuk when it gradually becomes a mere channel through a vast inundated area. As long as one has a definite horizon or some distinct feature such as a river bank upon which to focus one's gaze it is not a difficult matter to fly in even very bad visibility. It must be remembered that whereas it is a comparatively simple matter for a motor car to go at forty miles an hour along a road with a five or six hundred yard visibility, it is a vastly different thing to pilot an aircraft at one hundred miles an hour with the same visibility and an indefinite horizon. For these reasons I was worried about flying over the open swamp of the lake, because the muddy brown waters merged into the brown dust-laden atmosphere and I felt it would be difficult to distinguish which was water and which was air. When a pilot is enveloped in thick fog and has no horizon whatever, he very quickly loses his equilibrium and cannot make his own level; in fact he loses all sense of where the ground is, or which is top and which is bottom. The same conditions exist in a blinding sand-storm as in a fog, and therefore I felt that if I lost my horizon as a result of the water merging into the sand-storm I might find myself in a very awkward predicament. However, fortunately there were rushes and weeds drifting on the lake which were sufficient for me to distinguish its surface, and this gave me a horizon to work on.

Soon we left the town of Suke Shuyuk behind us, and as we went on I was determined that no matter what direction I might be taking I would follow the somewhat irregular definite coast line of rush swamp rather than go out on a direct course over the open water. And so, flying at about fifty feet above the reeds, I made a zig-zag course along the somewhat indefinite edge of the lake. I was making for its southern shore where I knew we should meet hard earth and thus have something distinct to see, and although

at times I seemed to be flying back on my tracks, I kept on, knowing that eventually we should come out to the bare desert again.

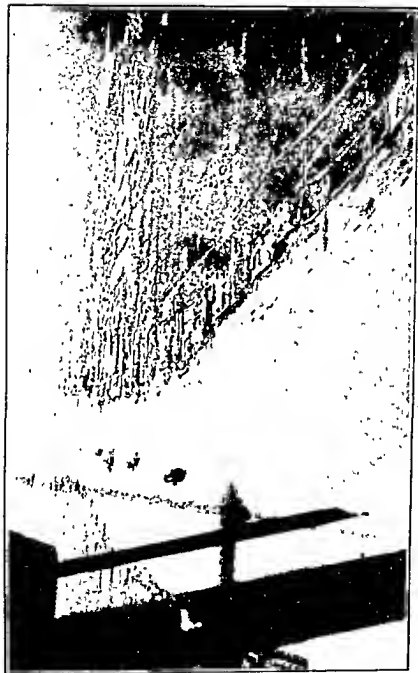
Gradually the swamp area began to give way to the irregular sandy coast-line, and I was just congratulating myself that we should soon be out of our worst difficulties and flying at an altitude of not more than forty feet in order to get the maximum visibility ahead, when suddenly there was a violent explosion which appeared to come from the cabin. Instantly I shouted through the connecting window to Elliott asking him what had happened and if we were on fire, for my first thought was that possibly one of our rocket-pistol cartridges had exploded, and as the rocket burns for many seconds with an intense flame it would certainly set the machine on fire. Elliott shouted back in a very feeble voice that a petrol pipe had burst, but it was difficult to hear him and as I was unable to shut my engine off and glide owing to our very low altitude, I tore a sheet of paper off my writing-pad and handed it through the window to him. Presently a message came back to the effect that the petrol pipe which leads from the reserve tank in the cabin to the supply tank on the top wing had burst a few inches from the point where it was joined to the cabin tank, and that he was lit in the arm very badly and was "bleeding a pot of blood." As he handed the message through to me I noticed how terribly pale he looked and I knew that he must be very seriously wounded. Immediately I was confronted with the problem of whether to land and endeavour to render first aid, or whether I had better carry on. I looked beneath me and there was nothing but the dirty brown shallow waters of the great swamp. The heat was terrific and I reflected that even if I did land without the aid of a second man I should most certainly have to drift on the water and run the risk of beaching the machine on a mud bank; and worse still, having rendered what aid I could to Elliott, I should have to start up the machine again single-handed—no easy matter when both engine and atmosphere are very hot. Furthermore there would be the difficulty of leaping into my cockpit and taking control of the machine again after the engine had started. Then again I thought "Elliott is bleeding and I might be able to stop it," and

yet again I argued that if he were very badly hit he would need a doctor's attention, and to run the risk of trouble through landing in the swamp in a dust-storm, many miles away from any habitation or help, and of being unable to restart—having rendered first aid—seemed wrong. Therefore I made the decision that the only thing to do was to fly on and try to make Basra as quickly as possible, and perhaps this decision was confirmed when a few seconds later I hit up the definite southern desert coast-line of the Hammar Lake, then headed eastwards as hard as I could go to Basra, where I knew there would be every possible assistance and a hospital.

It was 110° in the shade that day and flying low at fifty feet with the throttle wide open did not make for a pleasant trip. The heat was overpowering; gradually my oil temperature rose, and, considering that my engine was air-cooled, it was going to be a severe test. I estimated that we must be nearly a hundred miles from Basra and I was hoping to land on the river there in about forty minutes, so that it might be possible to get medical assistance in under the hour. Our old bus did about a hundred and twenty-five miles an hour full out, and at this speed we hurtled along, skimming over the bank of the lake mile after mile, while all the time I was wishing I could go still faster. It was an enormous relief when the weather began to clear and the dust storm abated, and when within about thirty miles of Basra itself we came out into brilliant sunshine I was able to climb to a more convenient height.

At last the great port of Mesopotamia came into view and I could see the broad river littered with a mass of shipping. The next problem was to know where and how to land. It must be remembered that when one is floating on the water with a seaplane, as long as the engine is running the craft is moving forward and the moment the engine stops, unless there is no current and no wind, the seaplane is drifting either with the wind or with the current.

Now I could see that there would be a strong current running at Basra so I knew that once I had landed I would have to beach the machine on the bank forthwith because, owing to the fact that when taxiing there is not enough speed to create sufficient draught to cool the engine, we should



THE TIGRIS AT BASRA

very quickly over-heat and run the risk of our engine seizing up. As we passed over the palm groves, to my dismay I discovered that the river had an embankment on each side, or piles, or shipping, or some obstruction or other for miles on either bank and there seemed not a spot with an open mud beach upon which I could run our floats. At last I spied a little mud bank next to a small creek and decided that I must get down on to the water and make that bank. Fortunately there was a clearing of the small craft at that moment on the water beneath and we were able to land quite well, and then I taxied as quickly as possible towards our refuge. It was difficult to steer the machine against the current but, knowing what was at stake, I could not be too particular about damaging our floats, and so at a fair pace I taxied up towards the mud bank, then slowed down and, just as I was about to drift broadside, opened up full throttle and ran the floats high up on the mud. Luckily the mud was soft and we came gently to rest high and dry. So I shut off the engine and got to the cabin as quickly as I possibly could. As soon as I opened the lid I discovered poor Elliott in a terrible state, sitting huddled up on his seat in the corner at the back of the cabin. It was about four o'clock in the afternoon and the heat was terrible; I noticed that he was having great difficulty in breathing. He told me feebly that he was sure he had got a hole in his side and that he was breathing through that hole.

Natives had gathered round, and perhaps the sudden landing of the machine had scared them, for they were most stupid and would render me no aid whatever. However, by sheer force I lugged one up on to the floats and made him stand up and help me lift Elliott down. It was an awful job raising him out of his seat, for I felt that I must inevitably hurt him. At the same time I did not want him to exert himself at all although he was so willing, despite his agonies, to assist in lightening his own weight as I lifted him out. Elliott had always been incredibly methodical with his duties, specially in the matter of engine maintenance, and I shall never forget that while I had him in my arms and was struggling with the assistance of the native to step down from the lower wing on to the floats, he said to me, "Turn the oil off" (it was a job that always had to

be done immediately the engine stopped), and feebly tried to push down the lever which was close by. As soon as we were off the floats we laid him gently down on the bank and endeavoured to prop his head up with some cushions out of the machine. I had a quick look at his arm and the wound in his side and could see that, apart from temporarily plugging the wounds with cotton wool, I could do nothing. During the slight I had been able to hand him my brandy flask, but after a time he had become too weak to lift it to his lips and so I was now able to give him another drink and then set to work immediately to get help. I wanted a stretcher or bed on which he might be carried, but all the stupid natives did was to run away. Not one would go in search of a doctor; they simply shut their doors in my face when I asked for help. However, at last I got one fellow to go over to the B. O. C. bungalow and warn them that we had a man who must go to hospital, and then I tried again to make some sort of improvised stretcher on which we could lift Elliott. I felt like murdering every fool I came in contact with, but fortunately at this juncture two launches arrived with white men on board who had evidently seen our landing. Very quickly the situation was explained to them, whereupon they rushed to the nearest native hut, walked in, took the first rush-made bed and converted it into a stretcher. On this we lifted Elliott and a few moments later, having left someone to guard the machine, we were speeding down the river towards the B. O. C. bungalow.

Going out of the open air into the bungalow at Basra was like going out of a very hot room into the night air in England, for inside its thick walls the air was cool and we soon had Elliott lying on soft cushions with two electric fans going full out above him. Then came another interminable wait until the doctors arrived, and although they were tearing in cars full out they had to come a long distance. To me it seemed that they would never come and that they did not realise the gravity of the case, for I suppose by this time I was suffering a certain amount of reaction after a somewhat trying day. A little later Elliott's wounds were temporarily dressed and he was taken away to hospital. I remember Elliott saying that he could not understand

how the petrol pipe had burst. In the meantime I went back to the machine and we towed her down the river and up into the backwaters of the Royal Air Force inland water-transport dock and there moored her.

During dinner I endeavoured to explain to the Commanding Officer how it had all occurred, and the engineers present maintained that it was impossible for the petrol pipe to burst, for the simple reason that it was open at both ends and that it was not a pressure pipe, for the petrol was simply lifted by the pump to the top tank. They were convinced that there was no earthly reason why it should burst and even having done so, why it should do so much damage. I went to bed that night with the news that Elliott was doing quite well, but still wondering why it had all happened. The next morning at breakfast the engineer-officer asked me if I had seen any natives about when I was flying over the swamp and I replied that we could see nothing at all for the blinding dust-storm. He then told me that natives were there right enough and that they had shot at us ; that it was not the petrol pipe that had caused the damage but a bullet which had entered our machine, pierced the petrol pipe and hit Elliott, and to prove this he took me down to our sea-plane and sure enough there was a hole through the cabin side, and the despatch box from the Foreign Office to the Governor-General of Australia which lay against the cabin wall had a hole right through it. Then I planned it all out. The explosion that I had heard had been the firing of the gun, for we were flying so low that the sound of the explosion and the bullet arrived simultaneously. The shot had been fired evidently by an Arab who had pointed his gun at the approaching machine and had fired up at an angle of about 45 degrees. The bullet must have passed between our two floats and just missed the edge of the plane and a couple of flying wires. It then pierced at a slanting angle the wall of the cabin, passed straight through the petrol pipe inside the cabin and then on through Elliott's arm, shattering the bone, on again into his side passing through both lobes of the left lung until it finally buried itself under his right arm-pit.

Head-quarters asked me to show them on the map the exact spot where this had occurred, but owing to the prevail-

ing sand-storm it had been impossible to read a map. We therefore decided that the only way in which we could trace the culprit would be to fly back over our tracks, tracing back in an aeroplane the course we had come until I recognised the actual spot where the tragedy had occurred. And so it came about that I journeyed out to the Air Force aerodrome at Shiba with the object of taking off at dawn the next morning in an Air Force machine.

At this stage I was so depressed that I literally had no heart to go on with the flight. I had been to see Elliott, who was in a very weak condition and told me I should have to go on with the job without him, but I assured him I would wait until he got better. The doctors seemed happier now they knew it was a bullet, for they said they could easily extract it and that although Elliott was dangerously ill, there was no reason why he should not pull through. With these thoughts in my mind I spent the late evening with Squadron-Leader Stoddart at Shiba. It was only two short years before that Elliott and I had visited Shiba together on our flight to Rangoon and back, and many of the personnel on the aerodrome were still with the 84th Squadron. We were just about to turn in to bed, in view of our early start on the morrow, when a telephone call came through for me. I found it was a message from the hospital. The connection was very bad and I could hardly distinguish the message, but when I thought I understood what the man at the other end was saying I became nervous and called Stoddart to function for me. So armed with pencil and paper Stoddart repeated clearly sentence for sentence—"Tell Cobham that his engineer Elliott had a sudden relapse and died at 11.15 to-night."

For a moment I was stunned and could not realise it all; and I made Stoddart ring up again to confirm the news. When I found that it was indeed true I felt that surely now I must give up the flight. I felt I could not go on with it, for this was the culminating point of a depression which had existed almost from the start of the journey. In this state of mind I turned into bed and that is about all I did do, for after interminable wakeful hours the dawn broke at about four o'clock and Stoddart came in to tell me that the machines were being run up and that we were

ready to take off in search of the scene of the tragedy. There is rarely much wind in the early morning at this time of year and it is therefore the best period of the day for flying, for as the morning progresses and the sun rises the wind springs up and if it is very strong dust-storms develop such as we had been caught out in on the previous day. There were about four machines in the flight and I went up as passenger with Stoddart, directing him back over the course we had flown the previous day. After just over an hour's flying we came near the place where I had heard the explosion, and in a few minutes I estimated the approximate spot where I thought it had occurred. To make doubly sure we went on beyond until I recognised familiar land-marks we had passed over before we had been fired at, and thus by coming back over our tracks again I was able to locate within a few hundred yards the spot whence the bullet had come. We then flew off to the temporary landing ground at Nasiriya where by previous arrangement we were met by the Political Officer residing in that region. He got aboard one of the other machines and followed us back to the place I had already located, and I fired pistol rockets at the ground to show him the approximate spot. Near by was an Arab shepherds' encampment, and we flew very low endeavouring to have a look at these people and, as Stoddart said, "To try and draw the — devils' fire." When I hinted at risk, Stoddart reminded me that ever since 1914, he had never been hit and that his luck was not likely to fail him now! We dived and skimmed over their heads within a few feet, but they were not having any, and not so much as a rifle was raised.

So we reluctantly turned back towards Khamisiyah, a village a few miles away, and there ascertained what tribe was encamped at the place I had identified. With this information we went straight back to the landing ground at Nasiriya and lost no time in getting to the town. The Political Officer was soon informed that the chief of that particular tribe happened that morning to be visiting the town, and within half an hour he had been found and detained in the local gaol pending investigations. From then onwards the investigations progressed which led to the ultimate identification and confession of the Arab who had

committed the crime. But all this occurred some weeks afterwards, of course.

I continued to be so depressed that I felt it was hardly worth while carrying on with the flight. Elliott had been with me so long and on so many expeditions, and to my mind his death was a severe loss to British aviation. The success of aviation has been built up on its reliability, and the greater proportion of that reliability depends upon the successful maintenance of aircraft by the engineers, and I shall always think of Elliott as one of the finest examples of what an aircraft engineer should be. He was systematic, could always organise his work, was absolutely reliable and altogether typical of that new race of engineers that has developed with the advance of flying.

I think it must have been the kind telegrams of encouragement from England that showed me clearly what I ought to do. My wife urged me to continue the flight. Then came cables of sympathy from Sir Samuel Hoare, Sir Sefton Brancker, Sir Charles Wakefield and Mr. Siddeley, all expressing the hope that I would carry on, so the next job was to find someone to take the place of poor Elliott. It was first suggested that a new man should come out from England, but owing to the missing of connections it appeared that nobody could reach me for about three weeks, which seemed a terrible waste of time. The Siddeley-Jaguar engine, although extensively used by the Air Force of the British Isles, had never been in service in Mesopotamia, and so there was great difficulty in finding anyone in the Air Force who knew much about this motor. However, the Air Force very kindly offered to lend me any mechanic that I might find in Mesopotamia who was capable of helping me to continue my flight and willing to go. After a brief search one by the name of Sergeant Ward was discovered who had a slight knowledge of the Jaguar engine in theory, although no actual running experience. He was heartily recommended by everyone as a sound engineer and a very hard worker, and after meeting Ward I decided that he was my man if he cared to go. The Commander-in-Chief readily granted him permission and leave, so that within a few days and after we had given the machine a quick overhaul we said goodbye to Basra and all its unhappy associations, heading



THE FUNERAL OF A. B. ELLIOTT AT BASRA

southward on the next jump of our long flight. Everyone at Basra had done all they could to help us and render us every possible assistance, but even so I am afraid that during the whole of my stay there I must have been very poor company and not so appreciative as I might have been under different circumstances.

CHAPTER II

BASRA TO RANGOON

Ward, like myself, was a Cockney, with a big sense of humour, and therefore I felt from the start that we should get on well together. Soon after dawn on July 14th we took off from the river at Basra and headed for Bushire. Just after sunrise the air is moderately cool at ground level, and it was a weird experience to take off in this comfortable atmosphere and, as we climbed, to enter a hot belt of air that intensified as we climbed higher. I should say we met this belt at about five hundred feet and did not get out of it until we were at least 2,500 feet up. This is evidently caused by the hot air of the previous day rising during the night.

We were making for the head of the Persian Gulf and were passing over some desolate, uninhabited, flat swamp areas, when I had the one and only uncomfortable moment with my engine during the whole flight. For some unknown reason the motor started to slow down and although I opened the throttle it did not instantly rectify the trouble; I was beginning to get alarmed and so immediately headed for the river. There was no spluttering of the engine; no instrument on the dash-board suggested any failure such as low pressure or high temperature; petrol taps were fully turned on, and yet one could hear that the revolutions of the engine were dying down and the revolution indicator showed a fall of about two hundred revolutions. It was a very alarming experience. But suddenly the revolutions rose again and from that day to this I have never discovered what happened or why it happened, and I can only surmise that there might have been some temporary obstruction in the petrol supply which might have caused this unusual incident. I mention

it because on our whole flight of twenty-eight thousand miles the Jaguar engine never gave us a moment's anxiety apart from this. During all those long, weary hours in the cockpit, the motor simply purred and purred without a single miss or suggestion of a falter.

This somewhat unpleasant experience over, I again headed towards the sea-coast, when I happened to notice that the petrol in the top tank was getting low. Now it was so arranged that we carried fifty-five gallons of petrol in the top tank which fed the carburetters by gravity feed, and one hundred gallons in a large tank inside the cabin. The top tank had to be kept supplied by pumping petrol from the tank in the cabin up to it. In order to save weight and add to reliability we dispensed with the idea of a wind-vane automatic petrol pump, and had a straight-forward simple hand-pump by which method the mechanic in the cabin could easily feed the top tank at the instructions of the pilot, because the pilot had a view of the petrol gauge in the top tank. Therefore when I noticed that the top tank was just under half full I handed a message through the window to Ward telling him to start pumping up, whereupon Ward set to, full of energy, pumping away. After about ten minutes I happened to notice that there was no progress whatever so I yelled through to Ward that something must have gone wrong. Ward seemed perplexed and pumped the harder, but after five more minutes of strenuous work I became concerned because the petrol was getting perilously low and I doubted if we could reach Bushire on the remaining fuel in the tank. Anyway I meant to go as far as I could and I again yelled through to Ward to do his utmost. Ward by this time was getting exhausted; his head was going with terrific jerks and I felt that if the pump were not already broken it very soon must be. Things were looking desperate when I suddenly remembered that there was a petrol cock at the bottom of the pump and it occurred to me that this might have been turned off during our stay at Basra. So I signalled Ward to this effect and sure enough that was the trouble. As soon as this little matter was rectified I saw to my relief that the petrol was rising in the gauge at the top of the tank and our worries were over. Of course we always speak lightly of our little difficulties afterwards, but at the time such

matters are rather disturbing.

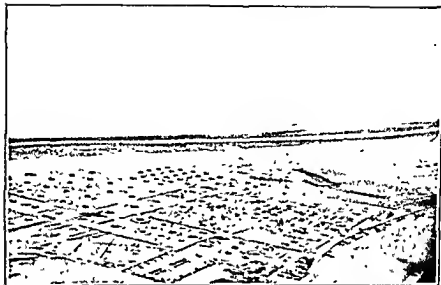
As we neared Bushire we ran through a very heavy ground mist and we finished up the first stage of our new start by creeping into Bushire harbour with a visibility of about five hundred yards. Luckily I had been there before, otherwise it would have been far more difficult. When we landed we found everybody much concerned about us owing to the mist, because it appeared that a pinnace which that morning had gone out to a big steamer anchored about a mile out to sea had lost its way.

The mist was very thick indeed, but happily we found that owing to it the air was about ten degrees cooler, which was a great relief after the temperature of Basra. As Ward was new to his job I decided that we would go no further that day, but instead would stay the night at Bushire and thus give him a chance to get down to the general organisation of both machine and engine. The proper maintenance of engine or craft is simply a system of performing at regular periods a schedule of inspections. For instance, after every landing we always inspected the oil-filter, which should give us any indication of internal trouble with the engine and also ensure that through grit or foreign matter our oil pressure should not fail. Again, after every flight petrol filters were always cleaned; and at the end of the day valve-springs and valve-stems were inspected and the engine generally looked over. After so many hours' flying the clearances on the tappets had to be checked, and in a like manner magnetos and every other part of the plane were overhauled. Besides this, of course, the controls of the aeroplane were periodically inspected, so that by going through the schedule according to plan any trouble that might be developing would be observed by the engineer in good time. By these methods we have developed a system of maintenance of aircraft that has brought British aviation up to its present state of reliability.

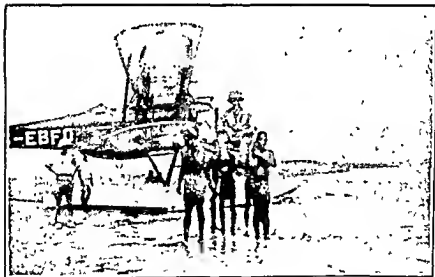
We had a pleasant flight down the Persian Gulf, passing along this very rocky coast-line with its wonderful, weird rock-formations which extend for miles with precise regularity, especially at one spot where layers of strata seem to overlap one another so that the mountain appears like a gigantic tiled roof. Just before arriving at Bandar Abbas we came

upon some wonderful oxide formations. I had seen these before on my flight to Rangoon and had been struck by their vivid colouring. There are mountains and hills of varying hues, such as a sugar-loaf formation towering up several hundred feet, of a brilliant turquoise blue; then close by a similar mass of perfect jade green; and in the background a mountain of indigo blue beside a range of bright yellow hills, while in the foreground rise mounds of bright red rock. In between these amazing masses of colour are streaks of silver formed by the silver sand of ancient dried up river-beds. Away to the south in a deep blue sea we saw the island of Hormez, of a similar oxide formation, and it was there that the Portuguese had mines in centuries gone by. It is my great hope that one of these days we shall be able to photograph these wonderful sights with colour photography.

When we arrived at Bandar Abbas we discovered that a very big sea was running and, what was worse, the wind was not blowing in exactly the same direction as the breakers were running. Now, as everybody probably knows, an aeroplane always lands head into the wind, so that if the landing speed of the aeroplane is forty miles an hour and it lands against a wind blowing twenty miles an hour, then the actual speed over the earth is only twenty miles an hour; and, conversely, if one lands *with* the wind, the machine would touch ground at sixty miles an hour. Now a seaplane must land at right-angles to the breakers so that it rides over the top of them, otherwise one float would be right down in the hollow and possibly the other would be right up on the crest of the wave, as the sea is on the move all the time and the aircraft also. This state of affairs might be very serious, as the extended wing-tips when put over at this violent angle so near the water might easily be dipped under a breaker with disastrous results. Under these conditions my feelings may be imagined when I discovered that the wind was blowing at an angle of 45 degrees to the roll of the breakers. However, as the sea was running so high I decided to land slightly across the wind, but directly head on to the wave courses, and in this manner we got down safely. The moment we came to rest on the water we were pitched and tossed about in a violent manner, but luckily a launch was waiting to take us to our moorings and without any great



OIL STORAGE AT MUHAMMAREH



TRANSPORT AT BANDAR ABBAS

difficulty we were soon tied up.

The heat at Bandar Abbas was even greater than at Basra, and evidently exposure in the open cockpit for three or four hours was beginning to tell on me a little; so, leaving Ward on the craft, I decided to go ashore immediately and at the same time ascertain the possibility of beaching the machine, as the sea was so rough that the continual buffeting that the craft was getting would hardly do her any good. By the time I got ashore I was fairly well exhausted, but I found Dr. Mackay—one of those brave men carrying on in the unpleasant places of the earth—waiting under an awning with cold drinks, in fact iced drinks, for a ship had just come in that day bringing a supply of ice and the Doctor very sportingly shared it with us. I found that lumps of ice applied to the back of the neck had a fine reviving effect, and after a few more drinks I was ready to consider the next move. We decided then and there to beach the machine, and so went out again and towed our bus in, and as the tide was going out she was left high and dry on the sand. Later on a new difficulty presented itself, because the sea became rougher, and when next the tide came in we discovered that the oncoming breakers would rush under the machine, lift the floats and drop her down again on the beach. This of course would spell disaster; despite the fact that our floats were metal, such a bumping of them on a sandy bottom would soon put holes in them, and this would mean the ruination of the flight. So the only thing to be done was to wait until the tide came in, hold the machine down firmly until there was sufficient water to launch her again and then hold her in position while she floated in a safe depth until such time as the tide went down again, when we would rebeach the machine. Unfortunately high tide was about 2 p.m. and 2 a.m., so that owing to the fact that the sea was so rough that we were unable to get off again that day, it meant that we had to get up at 1 o'clock in the morning to refloat the seaplane, stand waist deep in the warm, sticky salt water for an hour and a half or two hours, and then rebeach the machine.

On the second day it blew hard from sunrise until dusk, and a hundred yards from the water's edge the breakers were anything up to six or eight feet high, so that it was impossible

as they were down current, the seaplane drifted on to the boat and the whole lot drifted to the launch together, but so badly did they manage affairs that whereas they drifted on to the port side of the launch the seaplane, which was being towed on a good length of rope, was allowed to drift on to the starboard side ! And then came the crash. When our precious seaplane, in which we had flown all the way from England, and in which we still hoped to fly to Australia and back, collided with the rails of the launch and I could hear the cracking and crunching of timbers, of wings breaking, and, after a moment's pause while the waves bore her away a bit, and then back again, more cracking and more splitting of spars and ribs, I was in despair. She drifted on at such an angle that the starboard wing-tip and the starboard tail-tip collided with the launch ; when I had seen disaster coming I had managed to leap from the boat to the launch and just get to the tail in time, but despite all my strength I could not hold off the entire weight of the seaplane, although I think I lessened the force of the blow with which the tail kept bumping the launch rails. But there was no one to hold off the wing-tip in the same way, and so I shouted to Ward to come aboard and help. Now an unfortunate coincidence which nearly caused tragedy was the fact that our host the bank manager's name was Ward, as well as that of my engineer. Sergeant Ward had gone out on the floats of the seaplane and so was unable to get to the wing-tip and render assistance, and when I had yelled for help I had meant our host in the rowing boat to get a native to come and hold the wing-tip. But still no one got out of the boat, our host still thinking I was addressing my remarks to Sergeant Ward ! I yelled to the natives, but they simply sat there like idiots, content to watch the whole machine sink. I was almost in tears, because here was the embodiment of all my hopes and ambitions being wrecked and ruined before my very eyes, while I was powerless to prevent it.

I called to them to help ; I cursed them in every language known, but all to no avail. There was a lull in the waves for a moment and I was just able to leave the tail, rush to the boat edge and use my foot with all the force I could muster round the heads and bodies of the crew in the boat. I dragged them on to the launch and thus I got two on the

tail-tip and two more on the wing-tip and in this position we held her and got breathing space. Of course by this time the damage was serious and it was useless to leave her there with the idea of taking off in the morning, for I knew she would have to be taken ashore again to be repaired if possible the next day.

Now the native has a very stupid temperament. They all knew they had failed dismally in this job, and they knew that if they had to tow her back everyone would know they had failed, therefore I found them very reluctant to obey my orders to get us ashore again—in fact it was only by dint of physical effort and threats of death that I managed to persuade these poor, half-witted, cross-bred, nondescript coolies of the Persian Gulf. Eventually we reached the beach again and pulled our floats up on to the hard sand. It was too dark to inspect the machine then and, as I knew she would be safe because it was not high tide until mid-day, we struggled back to the bungalow again in a state of utter exhaustion and mental dejection. For my part I flung myself on the bed, not caring what happened, but knowing that we had a further delay now, and tried to cheer myself with the fact that we were not completely wrecked.

The next morning on inspecting the wing-tips and tail we discovered that the damage was not nearly so bad as we expected, and we were able with a few minor repairs to have the machine ready for flight by about midday. By this time the sea was rough again but as the breakers were quite moderate, at least as far as I could see, and as the fishermen assured me that there were no big breakers out at sea, I decided to risk starting, because all the breakers I could get a view of from the beach were not big enough to do us serious harm; so we warmed our engine up all ready to take off. We were very heavily laden and I estimated that we should require a reasonable run to get off, but provided the breakers beyond my view from the beach were not greater than I could see, we should be all right and we just opened out again to gather up speed. It was no easy matter to handle the seaplane, because each wave-crest seemed to hit the floats with a particularly heavy thud and I had to be most careful that the floats did not miss a crest and dive down under a wave, for this would mean a bank of water flooding

over the floats and deluging the propeller and engine, which of course would not be at all good for either. We were just beginning to work up speed and had got up well on to the first step of our floats when we came to more or less open sea, and here to my horror I discovered giant breakers which I knew were far too big for us.

However, as we had gathered up a fair amount of speed there was a possibility that I might be able to ride the crests of the waves, and so I carried on for a second longer. But I quickly discovered this was impossible and then came the terrible period when I had to throttle down amid this awful pitching sea, praying that I should not be swamped and should get nothing broken. As the engine slowed down, so we plunged deeper into the waves with more sickening thuds, and I was only too thankful when at last we stopped. Then we had a new difficulty because it was vital to keep our machine head on to the wind, otherwise, if she got broadside on owing to the violent pitching and tossing, our wing-tips would be thrust under the waves and the wings broken. It was difficult to keep the engine running, for a deluge of water kept breaking over the lower cylinders and of course such conditions were of no use to the propeller, which ran the risk of being broken any moment by the waves. We had unfortunately lost our sea-anchor, but even if we had had it Ward would have found it almost impossible to get out on to the floats, as he might easily have been washed overboard, so violently were we being hurled up and down. Luckily we were drifted backwards head on to the breakers and thus we came back into water sheltered enough for natives to wade and swim out to us. But here again their stupidity nearly wrecked us, for instead of man-handling our machine back the way we were drifting, namely head on to the breakers, they started to turn her so that they could bring her in head on to the beach, disregarding the fact that in the process of turning we should have to get broadside to the waves and run the risk of getting our wings under the water and broken as the machine beeled over at a perilous angle in the act of riding a big breaker. Here again Ward found that the only way to save the machine was to use his toe in tender spots of his fellow-creatures who had swum out to help, and thus, by dint of much shouting and here and

there the further application of the said toe, we were man-handled backwards, keeping our head on to the breakers until we were finally beached and were safe once more. We found that the undercarriage strut had been broken, which necessitated a further delay for repairs. Ward was not disheartened, but set to work immediately to take the damaged strut off. We then went up to the Consulate to see what materials we could find to patch the machine up.

About six years before, some Handley-Page spare parts had been put down in the Persian Gulf for a flight which was conducted by Sir Geoffrey Salmond along the Persian Gulf to India. Among the spare parts was a Handley-Page centre-section strut which we persuaded the clerk-in-charge to let us have, although he was very reluctant to do so as he maintained it ought to be kept for a Handley-Page machine—despite the fact that that particular type was obsolete many years since! After stripping the faring off the strut we discovered a round tube inside, and Ward worked like a Trojan, stripped to the waist and with about four natives round him. He proved an excellent blacksmith because we found that when we hammered the round tube into an oval shape it fitted inside the oval tube of our undercarriage strut with absolute precision to the thousandth part of an inch. So we refitted our strut, and the repair held good for the rest of the journey to Australia and back again to England.

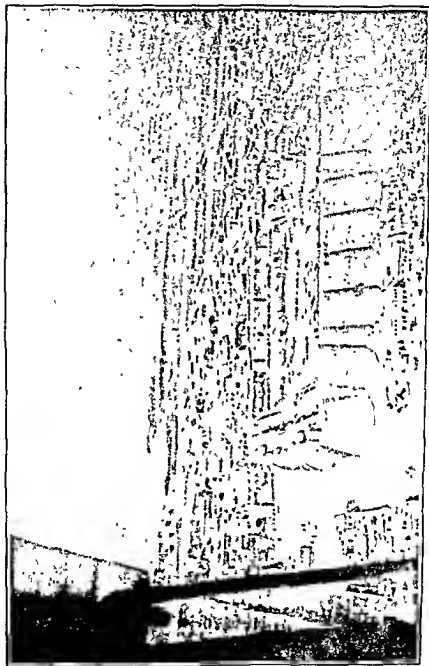
Two days later we finally got away from Bandar Ahhas and headed down the Persian Gulf to Chahbar. We arrived about midday, our intention being to fill up and push on to Karachi. There were some nasty rollers at the time and we had just completed filling up when Ward stepped on a float that wasn't there and disappeared into the sea. I was rather perturbed about this, but a few seconds later I was helping to pull him up over the floats little the worse for his severe ducking. It was one of the fears of my life during this flight that someone would fall off the floats and be unable to regain hold of them on account of the strong under-current that would drag him under the water, with the possibility of being exhausted before help were available. So I was always warning Ward about falling in and furthermore about dropping things in. One of the important things an engineer must

remember when working on a seaplane in the open sea is that, unless he has a sheet underneath the engine, whatever he drops he loses, and if he happens to let slip through his fingers some vital part of the engine it might be a severe handicap to the expedition. We only just managed to get off from Chahbar over the rollers and then headed eastwards down the coast towards Karachi. It was a misty day but we had a fairly good flight and at last when Karachi came into view we could see two launches out in the spacious harbour waiting to meet us.

Now at Karachi there is a large aircraft depot which supplies the whole of India with its new machines and necessary spares, and naturally they were going to take an interest in us and render all possible assistance. It also happened that the Commanding Officer of the Air Force depot was an old seaplane pilot and was naturally looked upon as an authority on the subject of my landing. He therefore gave his skilled advice regarding all the arrangements that were made for our arrival, although, as we were landing in the harbour, the Port Officer was the man responsible for our reception. Among other things, the C. O. warned everyone not to be annoyed if I were a little vexatious on landing. He explained that, being an old seaplane pilot himself, he knew the anxieties that would be mine. He reminded them how I had brought this seaplane all the way from England and hoped to take it all the way to Australia and possibly back again, and that I was nursing it like a baby; and that like an anxious mother with her child I should probably imagine that everyone was out to destroy us. Therefore he cautioned all boats not to come anywhere near us on landing lest I let forth unpleasing language—a quite common and excusable thing for a seaplane pilot to do when landing his craft. He told them they must bear with me until I was ashore, for then I should be quite human again. Well, we made quite a good landing on the water and I taxied a little way until I saw the launch, and then rather than get my engine too hot (for an air-cooled engine is only kept so by its speed through the air) I shut it off and waited for the launch to come and take us in tow. Ward was standing on the end of one float and I on the other, each of us ready to catch the heaving line when thrown to us, whereupon we

This doubt remained until at last I saw the great railway bridge ahead just above Bahawalpur and knew that our troubles so far were over. The heat had been terrific and although I wore coloured glasses the continual glare of the waters of the Indus had affected me, so after landing and mooring up I felt in a very distressed and gasping condition. There was an old launch towed alongside where preparations had been made for our arrival, and as soon as I got aboard they quickly revived me with slabs of ice on my head and the back of my neck. I had no idea that this treatment could have such a miraculous effect, for I was O.K. in five minutes.

At Bahawalpur the temperature was 110° in the shade, but much drier than it had been down the Gulf and therefore not quite so hard to bear. After a very pleasant evening, during which I had been able to get my dispatches and correspondence up to date, we were ready again on the following morning to push on another four hundred miles by a land route towards Delhi, when we should jump from the waters of the Indus over to the Jumna.



THE ANCIENT CITY OF BHITINDA

start, next, as soon as a little speed is gathered, comes the process of pushing the control lever right forward in 'an endeavour to get the tail up, because owing to the increasing speed there is no fear at this point of the floats dipping into the water, until such time as the tail rises up and the machine gets on to the step underneath the floats, when it quickly gathers greater speed. The control lever is then eased back a little and the wings begin to lift her off the water.

I had about reached this stage and was just going to ease the machine off the water when I happened to notice some poor wretched native hanging on to the floats. It was only by sheer luck that I looked that way, otherwise I might have found myself in the air with a native dangling from my floats prior to making a very unpleasant plunge to the water beneath. The moment I noticed him I throttled down again and shouted to Ward to get out of the cabin and make the fellow get off, because the river was too narrow for me to turn in, and I did not want to stop my engine, and worse still we were getting near the sandbanks ahead. The native took no notice of our shouts so I told Ward to get him off at all costs, whereupon we very cruelly pushed the poor fellow into the water by treading on his hands until he had to leave go. I do not think I could have been capable of such an act had we not been tuned up to the emergency of the moment. Immediately he left go and disappeared under the water, I straightway opened out and before Ward was properly in the cabin again we had gathered speed once more and were taking off into the atmosphere. It was at this point that I realised what we had done, and I looked round, trusting that the fellow was safe, for the natives are all wonderful swimmers. Our fears were allayed when we saw a party of natives come to his rescue and drag him out, for I heard on my return flight that curiously enough this poor creature could not swim and had got nervous at the last moment and dared not leave go of the floats.

We left Bahawalpur in a dust-laden atmosphere, and rather than take the winding course of the river, or on the other hand push out into this bad visibility on a compass course, I followed the railway, which is more or less direct. Thus we skimmed along at about one hundred feet for a couple of hundred miles until we came to the ancient city

of Bhatinda, where the visibility began to be clear and we got into comparatively brilliant sunshine and so continued south-eastward until we came to Delhi. The Burma Oil Company had made full arrangements for our fuel supplies and landing facilities across India and Burma to Rangoon, and without their help I am afraid our passage would have been very difficult. We landed on the Jumna at Delhi and luckily got into our moorings first shot. Getting up to one's moorings single-handed without the aid of a launch, specially when there is either a strong wind blowing or a strong current running, is a very difficult business with a seaplane, because the machine has to be taxied over the water to the mooring. Very often owing to the wind and current, it was a most difficult procedure to keep control over the direction of the machine so that I could bring the starboard floats up within a foot or so of the mooring buoy to enable Ward, standing on the float with a boat hook, to catch hold of the buoy and make fast.

At Delhi we landed very well. Fortunately a strong wind was blowing down the river, so that we had to land up-wind and up-current, which was ideal from a landing point of view; and thus we were able, owing to the wind and current, to taxi very slowly up to the mooring where we easily made fast. We were not long in re-fuelling and were ready to take off again when we discovered that we could not start the engine up. Poor Ward turned and turned the crank-handle while I turned the self-starter magneto, all to no purpose, for after spluttering a few turns the propeller would stop. Now this was the first time in all my experience of the Siddeley-Jaguar engine that she had failed to start up, so Ward being exhausted and the hour getting too late for us to reach our destination before dark, I considered it best to stay at Delhi to give Ward time to inspect his engine. This naturally meant staying the night. The next morning, despite the fact that Ward had thoroughly inspected the ignition magnetos and been well over the whole machine, we still had the same difficulty. I was convinced that the cause of the trouble lay in the petrol supply, but on inspection this appeared to be perfect. I then remembered that it was our custom to wedge a large piece of rag in the air-intake pipe to prevent sand and such foreign bodies getting into the carburettor. Two of

these wads in the intake pipes had been sucked right down, and when they were removed our engine started up first shot.

Now when the engine starts is the time to cut adrift but we discovered that we could not get head up-stream and were afraid to cast adrift because the wind, which was blowing across the river, blew our tail round and pointed our nose into the bank.

It must be remembered that a seaplane on the water is like a weather-cock and is automatically kept head into the wind by its keel surface. At the same time the current at this point of the river was running at about ten knots and washing into the bank so that we found it impossible to get away from the bank, and therefore could not run the risk of opening up our engine and getting away from our moorings. We were being held in the creek in position by ropes from either bank and the work of organising these gangs of natives was exciting. Ward was a wonderful fellow in such emergencies. His energy was untiring and he seemed to live in a bathing costume, and was everywhere at the same moment. Suddenly one rope broke and we found ourselves drifting across the creek on to a stone embankment. Had it not been for the presence of mind of Ward, who leapt into the water just in time to hold the drifting machine off, we should have met with disaster. Again ropes were fixed and now I decided that I must go once more into the open river and that natives would have to hold me in position facing up-stream by means of long ropes, and that they would have to let these ropes out quickly as I opened up my throttle, so that I could immediately get up speed enough for my controls to act, owing to our forward pace, above the force of the wind and the current. The only drawback to such a procedure was that it was impossible for Ward to cut us free from the ropes and leap into the cabin with the engine running full out. This business would take at least a few seconds and, unless I was able to open out full blast the moment the ropes were cut, I should find myself again in the bank and unable to get up sufficient speed to turn up stream before we collided. A very plucky native sergeant-major came forward at this juncture and volunteered to solve the difficulty. It would be all right for Ward to get into the cabin, he said, for he would go out on to the floats and as I opened up and the natives

let the ropes out and the machine gained speed, the moment I was going fast enough to have complete control I was to raise my hand ; he would then cut the ropes and jump off into the water and swim ashore. It must be remembered we were held by ropes hundreds of yards long on either side and so there was sufficient rope to be let out to get up speed, and as I started I opened out and very quickly got control and headed the machine away from the bank. Then when I was doing thirty miles an hour I raised my arm, and instantly the plucky sergeant-major set to work and cut the ropes. As the last rope was severed we must have been doing forty miles an hour, when he slipped quietly off the floats into the water and disappeared out of sight. Then came the terrible take-off in which we had to go up the river, crossing against the current and wind. I shall be eternally grateful to our good friend the native sergeant-major for his timely help ; as we flew back over the river I was glad to see he had got safely ashore and was waving us farewell.

Our flight from Delhi to Allahabad was uneventful, and I had time to notice the difference in the countryside as compared with my previous visit, which had been in the winter time two years before. Everywhere natives were at work in the fields benefitting by the start of the monsoon, and already the ground was green with the crops coming up. We left the River Jumna and crossed over the land for a distance of a hundred miles to the Ganges, whose course we followed until it converged with the Jumna again before reaching Allahabad.

When we arrived at Allahabad I found they had marked my landing places out in the wide flood waters of the Jumna with six huge buoys, each one being quite big enough and strong enough to hold a battleship, let alone a seaplane ! They were like immense floating iron tanks that towered about six feet out of the water and were nearly a couple of yards in diameter. If we had collided with one it would certainly have sunk us right away, for it must be remembered that the metal of our floats was only about one thirty-second of an inch thick and, although they could take severe shocks when the whole surface hit the water, a sudden blow at any particular spot would puncture them immediately. We landed on the water and taxied up to one of the buoys at the extreme

is to taxi about over the water for a little time before taking off, but this is not always convenient as there may be no room for such a manoeuvre. So at Akyah I hit upon the idea of attaching the machine by means of a rope to the launch and then being held from behind by this rope while the engine was ticking over and warming up, and so we put our scheme into practice. All went well for a few seconds, when we noticed that the rope was gradually getting tighter and tighter, and thinner and thinner, until suddenly it snapped and we lurched forward. There was a small craft holding the line out of the water and as the rope broke close up to the seaplane, it sprang back with great violence, encircling the occupants of the rowing-boat and nearly dragging them overboard. The situation was ludicrous but we had no time to laugh or dally, so we just opened out and took off straight ahead on our way down the coast of Burma.

We had not gone very far before I was aware that we were in for a bad time and were going to hit the Burma raiaas that we had heard so much about. It may be of interest to mention here that whereas the average rainfall in the British Isles is about thirty inches per annum, on the Burma coast-line it is anything up to three hundred inches a year and all this rain falls within a period of four or five months. These figures will give a fair conception of the quantity of rain that can fall in these regions. My course lay due south down the coast of Burma and therefore on the western side of the Arakanyoma range until I got to a point where I hoped to get over these hills at a few hundred feet into the valley of the Irrawaddy, and then fly due east to Rangoon. All went well until we suddenly found ourselves surrounded by heavy rain storms, completely overcast skies, and altogether a totally different state of affairs to the monsoons of India. We simply had to fly on, and there were moments when the rain was so dense that my visibility was reduced to about a hundred and fifty yards. Under these conditions it meant flying as slowly as possible at a very low altitude along the beach, where the coast-line was rocky and inundated with bays and inlets. The twistings and turnings required in order to maintain any sort of view ahead—as there seemed to be no visibility when one looked out over the sea—made it a most difficult and alarming task. I have memories of plunging into

dark banks of rain which became blue-black as we flew deeper into the storm. So it became darker and darker and the rain became heavier every moment, and if it had not been for the fact that I was fairly confident that the heaviest of the rain was only a few miles thick I could not have gone on. But I peered hopefully ahead for a little light on the horizon and as the blackness gave way to a lighter hue I knew that the worst of that particular storm was over; and thus I gathered confidence to continue until finally we emerged into a clearer atmosphere once more.

By this time I had given up all hope of getting over the mountains and flying over the Irrawaddy to Rangoon, and was contenting myself with the prospect of making an enormous circle right round the coast-line to Burma and then flying due south up the Rangoon River to Rangoon, thus avoiding the high land. When I came to the usual spot where I had crossed the mountains on two previous occasions, they were simply buried in black clouds, so I passed on through several rain storms, until suddenly there was a big clearing in the atmosphere and at a point that was approximately due east of Rangoon itself I could see that I could pass over the hills at a low point and get into the Irrawaddy valley without fear of being caught in low clouds or storm. This was a great relief and I had soon passed over the jungle and hit up the big river, passing right over Bassein and heading straight for Rangoon, when, within about five miles of the town we encountered a rain storm of such intensity that it was literally impossible to weather it. It was a great pity to have to about turn within three or four minutes of my goal, but I did not relish flying over the tree-tops and forests north of Rangoon in a blinding storm with no visibility. So I reluctantly turned and endeavoured to make a big circle round the storm, flying southwards in this endeavour, but it was bigger than I had thought and it forced me to travel for miles and miles in a southerly direction, always keeping in touch with various rivers and canals, until at last I found myself within sight of the sea. As another big storm was coming up, I decided to land on a convenient looking creek beneath me and wait for a little for the weather to clear. There happened to be a steamer trudging its peaceful way up these quiet waters and so I thought it would be a good thing

to land alongside and press it into our service, as the banks on either side of the river were very thickly wooded and it would be unpleasant to drift into them. So we alighted on the water and taxied up alongside this steamer and shouted to them to stop and throw us a line. A crowd of natives bung over the side, staring in open-mouthed wonder at our machine, but they showed no intention of slowing down, though we screamed and yelled and waved our arms frantically. Then as a last despairing effort we fired a rocket, which really seemed to impress them because I noticed that they were slowing down and that we were drifting nearer. I could not come too near however, and I hoped they would put out a boat and take us in tow, but they were so leisurely about it that by the time they had done so we had drifted down stream until we gradually collided with the bushes that grew deep into the water along the edge of the creek. Luckily everything was very resilient and no damage was done. Then followed a period in which we endeavoured to persuade the native who had put off in the small boat to come near us with a line so that we might be taken in tow, for it was clear to me that the steamer must pull us out of the bushes if we were to get out of the creek at all. But still the nervous native refused to come near enough to help us. It started to rain heavily, and we were quickly drenched to the skin, and before we could get the cover over the engine that was drenched too; and amid all our difficulties that stupid native just hovered about five or six yards away in his boat, not knowing what to do. For my part the grinniness of the situation was relieved by Ward, who stood on the end of the float and told the native in his best Cockney what he would do to him if he once got hold of him. Then he tried to coax him, but without effect, then he shouted violently at him, and finally as the native still held off he was almost in tears. The things he said about that stupid native and what he would do to him, once aboard the skiff, would have caused the poor fellow to pass right away had he understood the language.

At last I seized an opportunity and leaped into the boat myself, after which I was quickly aboard the steamer asking for the skipper. I found he was a native, and that no one aboard could speak or understand English. It was quite a big steamer, as river craft go, carrying a cargo of petrol some-

where up-river. I showed the skipper my map and asked if I could see his, but I soon learned that he knew nothing about maps and had never seen such a thing before. However, he knew where he had come from and where he was going to, and from that I ascertained our position. It appears he had come from Rangoon, and from what I had seen of the creek before landing I estimated we were about thirty miles south of Rangoon and about ten miles west of the main river. Then by means of a rope I managed, while the steamer was anchoring in mid-stream, to haul our craft out of the bushes into safe waters, and then I made them promise they would remain at anchor and stand by while we were held in this fashion. The next move was to get aboard the seaplane again, so I jumped into the skiff once more and was quickly on the floats.

I sent the native back to the steamer and decided the only thing to do was to get off straight away. This of course meant testing the engine very severely, for the instant the motor started up it would mean opening out to full throttle if we were to get off successfully. The engine had been exposed in a heavy downpour now for over an hour and looked just as though a hose pipe had played on it. All the same we were determined to take off, and Ward proceeded to start the engine up. Our plan was that, the moment we were certain the engine had started and was going to fire properly, Ward would cut us adrift and jump into the cabin as quickly as possible, whereupon I would open out and get into the air. All being ready, Ward gave me contact the moment he started to turn the hand-starting gear; she fired first time; he cut the ropes and leapt into the cabin; I opened out the throttle, and within three seconds of starting our poor old Jaguar engine, which had been icy cold and in a deluge for over an hour, it was given full throttle which it took without a murmur and we were off the water and in the air, circling over the steamer. The whole crew stood aghast and are probably talking to-day of those weird people who dropped out of the skies on to the water beside them, upset all their arrangements, caused them to stop their engines, cut their best manilla rope, and left them again without a "thank you."

In a few seconds we had left our steamer far behind and were heading north-east, following the course of the creek

which I knew would lead into the main Rangoon River. It was late afternoon, the light was failing, and we were flying in the aftermath of a very severe storm. The skies were overcast and threatening, and rather than run the risk of being caught out in a sudden squall over a forest swamp, I followed the course of the creek in preference to a direct compass course for Rangoon. At last we struck the great Rangoon River which runs from Rangoon to the sea, and flew up this wide waterway, at the head of which we could see the port of Rangoon, until we came to Monkey Point which is looked upon as the seaplane base of the district.

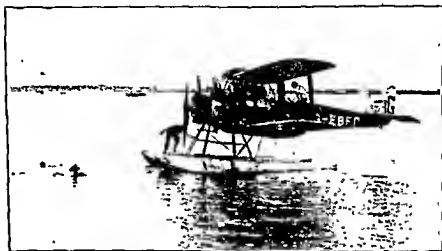
CHAPTER III.

RANGOON TO PORT DARWIN

The Air Survey Company had used Monkey Point as their head-quarters for two or three years but, the survey of the Irrawaddy Valley finally completed, they had gone further afield for their work, so that the entire Company happened to be in Borneo with the exception of one very good fellow who had been left behind to clear up affairs. However, many people were taking an interest in our landing, and the military and the port authorities collaborated in superintending these arrangements. When we arrived I could see no buoy, at least none in a position that I would care to approach under my own power, and so I landed well out in the river and, noticing several launches which presumably were there to render us assistance, I just switched off the engine and waited to be taken in tow. There was little activity for several minutes, during which time we were drifting towards the bank, when eventually out of the muddle of craft a little motor-launch emerged, crammed to its utmost capacity.

By this time we were drifting near the slipway and it looked as though we should collide with a mud bank on which were littered many rocks and stones. Ward and I, each seated straddle-legged on the bow-tips of our floats, our feet dangling almost in the water, were shouting for assistance to natives on the bank, urging them to jump in and hold us before we grounded on the rocks. One charming young

fellow who had evidently come to assist us happened to be standing on the slipway and felt the weight of his responsibility, for he became very agitated when he saw the wings of the machine drifting perilously near to a projecting wooden structure and our floats in such close proximity to the rock-strewn bank; at last, with a wild yell, he dived head first into the river and disappeared, to emerge from the brown liquid just under my foot, within one inch of our metal floats!



THE ARRIVAL AT RANGOON

By this time the natives had gained courage by our friend's example and thus we were man-handled on to the slipway. After putting wheels on to the floats by means of running a long shaft through a special axle-hole that had been made through our floats at the correct spot for balance against such an emergency, we were able, with the assistance of scores of willing helpers, to commence hauling our machine up the slipway. The wheels were not quite high enough, as there was only about half an inch clearance between the bottom of the floats and the ground, with the result that the utmost care was necessary to prevent damage to the floats. So that perhaps our arrival and introduction to the people of Rangoon lacked polish and charm, in that Ward and I could only concentrate on organising the gang of humanity that was so willing to help us. We had to take it for granted that they were out to help us and having

assumed that, we just hulled everyone into action. Natives were cursed at freely, caught hold of and placed in position, and by practical demonstration shown how either to push or hold. Europeans were commandeered to control the natives, and anybody standing about with his hands in his pockets, no matter who it was (and especially if he grinned at the situation), quickly had the smile removed from his face by a rude remark from myself requesting him to turn to and give a hand. I meant no offence to anybody and here offer my sincere apologies should I have hurt a soul; my only excuse is that we were up against it. The slightest mis-handling meant damage to our craft and ruin to the expedition, and as I was determined that we should get through with the flight, and as the immediate job was to get that machine up into the bangar, I was out to achieve my object by any means possible.

At last we were housed, our baggage taken from the machine, and enquiries made regarding fuel supplies and natives to assist in cleaning on the morrow (for I intended to use Rangoon as a base for the inspection and repainting of the bottom of our floats); when all these preparations had been made, very tired and very thirsty, I jumped into a car and drove into town. After a bath I was much refreshed, and while I sipped tea and ate biscuits I was able to write my dispatches for cabling to England and Australia. The moment this was done the door of my room was opened to admit the flood of local press correspondents. Having satisfied the exhaustive enquiries of these kind gentlemen, I was able to get down to general correspondence, the writing up of reports upon the engine and machine, the entering up of log-books and the cabling of our immediate movements, past and present, to various points along the route, and thus more or less completed the general routine of the day.

After a clear day in Rangoon, during which we had inspected and repainted our floats, cleaned the machine, had a thorough look over controls and attended to odd details of our engine, we were fortunate in waking to find a moderately fine day for our next jump to Victoria Point. We followed the same procedure in letting our aircraft down the slipway into the water as we had in drawing it up, and eventually we were ready to take off. On the first part of our flight our

course lay almost due east out over the open sea across to Moulmein, and then our route lay southward following the coast-line of Burma. We arrived over Moulmein just after a severe rain-storm. There was a break in the clouds and the sun was shining, giving us a beautiful vision of the many pagodas and the oriental splendours of the temples standing out clearly as the sun shone on the glistening wetness of their golden roofs. The skies were generally overcast and the horizon was never exactly clear, but nevertheless there was beauty in this mountainous jungle and forest-clad coast-line. Every rock that protruded from the sea, so long as it was possible for a seed of any sort to rest on its precipitous walls, was covered with a blanket of rich green vegetation. Even on the smallest rock-islands trees and creepers grew abundantly right down to the water's edge, and where the rock did not enter sheer into the sea there would invariably be a little silver-sand beach which separated the water from the jungle. It was of course the monsoon period and the water was not very clear but, from my previous experience of the coast of Burma at another time of the year, I knew how wonderful the scenery could be when the skies were gloriously blue and the land was bathed in sunshine. Out of the monsoon period the waters are so clear that from an altitude one can look right through the ocean to its bed in fathoms of water and it is difficult to tell exactly where the surface of the water begins.

We flew for about a hundred miles, and then went inland over a rocky cliff for just a few miles until we came to Tavoy, where we followed the great Tavoy River which runs parallel to the coast-line until at last it breaks into the open sea. Later we passed over the town of Mergui, but it was a dull day with low clouds and I was worried during most of the flight lest I might be caught out in bad weather and forced to land and take refuge from heavy rain. About fifty miles from Victoria Point the skies cleared and the sun shone, so that before leaving the Mergui Archipelago, which consists of over nine hundred islands through which we had been finding our way ever since we left Tavoy, it could be seen at its best. I should imagine that even the most unromantic soul could hardly fail to be moved by the scores of beautiful islands over which we passed. One felt how delightful it would

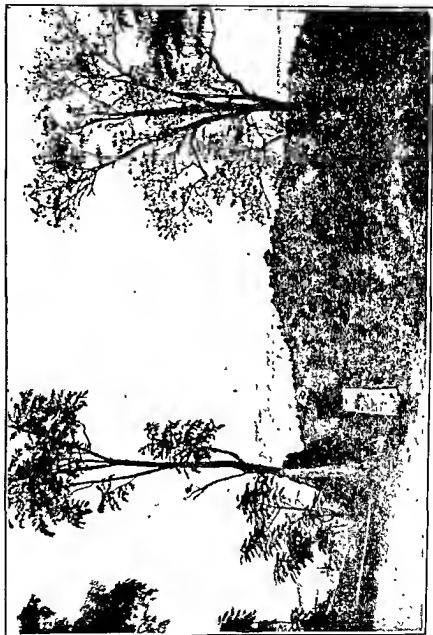
be to land in some of these sheltered bays, to float quietly on the clear blue water and linger awhile in the gentle breezes of so delectable a climate. But we had a job to do and, what was more, there were no supplies for us until we got to Victoria Point, nearly six hundred miles from Rangoon; so we cruised quietly on until at last this V-shaped prominence, which is the southernmost point of Burma and the very end of the Indian Empire, came into view. At Victoria Point the scenery is delightful and, apart from the luxuriant tropical vegetation and the wonderful clearness of the atmosphere, one might imagine oneself in the Lake District at home. We lost no time in landing and, finding that our moorings were in a very strong current, I taxied into the lee of an island just off the shore, threw out our own anchor and waited in these quiet waters while our good friends shifted the mooring for us.

I think that everybody knows that the Siddeley-Jaguar engine we were using on this flight was the identical motor that took me with the late Mr. A. B. Elliott from London to Cape Town and back. Now I can always remember that before starting on that Cape flight, when arranging as to what spare parts we should carry, one of the managers at the Armstrong-Siddeley Works seemed reluctant that we should carry spare valve-springs. He maintained that these had never been known to break and it was therefore quite unnecessary. On the other hand I maintained that valve-springs were a part of the mechanism of an air-craft engine, no matter what make, and in time were liable to break, especially after considerable running. So I had my way and we carried a few springs on the Cape flight, though I was glad to find that they were never required. This performance evidently gave the Armstrong-Siddeley manager confidence, so that after the Jaguar had been overhauled we set out for the great Australian flight with the same valve springs that had taken us to the Cape and back. Now with valve-springs it is purely a matter of time for the metal to become tired and the temper to go, so that at last they break. It must be remembered that on both flights we had been subjected to severe extremes of heat and cold, and so when on arrival at Akyah we had found one spring broken I was not surprised. Out of the three spare springs that we were carrying it had been quickly renewed—

a matter of about two minutes' work. Then at Rangoon we found that another spring had gone, and I naturally became a little disturbed. However this one also had been renewed and we had set out for Victoria Point. As we neared our destination I noticed that the engine was not running as smoothly as when we had started, and that she needed just a little more throttle than usual; having tested the ignition on the separate switches, I knew that it could not be either plug or magneto trouble. I therefore surmised that our clearances wanted a little adjusting, and on landing I told Ward about it. Curiously he had not noticed anything wrong with the motor, but the moment we started to inspect the engine we soon found the cause of the trouble. Instead of another spring having broken there were no less than six gone. Mr. J. D. Siddeley, who had fathered this flight, told me that the Jaguar would never let me down, and I relate this little incident because surely no other engine in the world than a Jaguar could have carried on so well and with so little ill-effect with six valve-springs broken; I appreciated anew the old saying that no matter what happens, the Jaguar will always get you there somehow.

Now we had only one spare spring left and this meant a set of inner and of outer springs, so we had to search round to find others at Victoria Point. Our friends even sent over to Ranawng, a village on the Siamese coast, where they managed to find three odd springs from an old Thornycroft marine engine. Then we found one or two bits of odd motor springs, and by splitting up our remaining spares so that we had valves running on a single inner spring and a single outer spring, we managed somehow to fix the engine up so that all valves had a spring of some sort. When we came to leave Victoria Point our engine started up, ran perfectly and gave full revolutions.

We had a delightful cruise from Victoria Point to Penang, and once we were one hundred and fifty miles south of Victoria Point I knew we were finally out of the monsoon area. We were fortunate in having a perfect day, and if the Mergui Archipelago had been beautiful, the islands along this coastline were even more wonderful still. I noted many seaplane harbours on my run down, and as it transpired it was lucky that I did so, because through these little observations I knew



PENANG

where to fly for shelter on the return journey. *

About five o'clock in the afternoon we came into Penang harbour just as the sun was going down behind the mountain at the back of the town, so that the clear-cut rock horizon formed by the mountain stood out holdly, illuminated by the great light behind it. We landed in the bay, which was quite calm, and as we could find no mooring we heaved our own little anchor overboard. We discovered that we had come quicker than our telegram and they had been unprepared for us ; for it appeared they dared not leave our mooring out, having already had three stolen by the native fishermen during the fortnight that they had been expecting our arrival. However, they soon brought out an anchor and we were quickly tied up in calm waters.

Somehow I experienced a feeling of relief on arrival here, for from all the accounts that I could gather we ought to have nothing but fine weather before us for the rest of our journey to Australia.

Penang was the start of public functions (very often the hardest work on a flight of this nature) for that evening, immediately the machine had been fixed up for the night and the Port Officer had kindly undertaken to look after Ward, I motored off with the Governor to Government House.

Penang is a delightful town, deservedly noted for its perfect order and cleanliness. As we left the centre of the city we passed through broad, spacious avenues overhung with magnificent trees. Everywhere there seemed to be abundance of foliage in which the villas of the merchants of Penang were partially hidden. Government House here is perhaps one of the most beautiful in the whole of the East, with imposing views of the great mountain behind the town appearing above the Residency lawns. It was a wonderful moonlit night and I longed to rest in this delightful spot, instead of which I had to dress in a matter of minutes and dash off with the Governor to an important dinner where, he told me, my presence was very much requested.

The following morning we wended our way *most* reluctantly down to the bay to continue our big journey. Our mooring was very close in to the shore and, fearing that in the gentle breeze I might have some difficulty in turning the machine out to sea without colliding with some rocks close at hand,

I decided it would be safest to be towed out a little way. I imagined that a native rowing a sampan could easily do this job. There was little current and very little wind, so we simply unhitched and the sampan took our line. But we soon discovered that the native, however hard he rowed, had no power whatever to tow us. We then called to another sampan for assistance, and in tandem fashion these two endeavoured to move us. But even they could not manage the job; we only seemed to go round in circles. Then at last we commandeered a third sampan and thus, with three sampans rowing in line, they just managed to tow our craft out to sea over calm waters. This is the more remarkable when it is remembered that it is possible for a strong swimmer to push our seaplane about unaided, provided there is no current against him. I think the failure of the sampans was due to the fact that they draw no water at all and consequently have no way on. Once we were a couple of hundred yards from the shore we cast our tugs—or tuggers—aside, started up the engine and quietly taxied into a convenient position for our take-off.

There is a great fascination about sea-going aircraft, whether it be seaplane or flying-boat, especially if the waters are calm, when it is possible to cruise along like a fast motor-boat, and to know at the same time that you have sufficient power to leave the water and cruise in the air if you feel so inclined.

As soon as we were in a convenient position I turned the nose of our De Havilland into the wind, opened out, and took off. Our next jump was a matter of some four hundred miles to Singapore and was more or less uneventful, except that the coast-line was full of interest. The huge cocoa-nut and rubber plantations that we passed over were specially interesting. There was one cocoa-nut plantation that was set out in regular rows and rectangular formation and, with the exception of the necessary roadways and canals, it was one vast forest of palms that extended for about twenty miles along the coast and at least ten or fifteen miles inland. I understand that cocoa-nut palms must be grown in close proximity to the sea, and that they rarely do any good more than fifty miles away from it.

At Penang, after our flight from Victoria Point with the odd valve-springs, we discovered that all the temporary ones that we had fixed up were holding good, but that two more

of the original ones had broken, so that we had to patch up again with two chance motor-springs. In this somewhat tied-up condition we once more took off on the four hundred mile journey, but knowing that when we reached Singapore we should find spare parts which had been shipped there from our previous organisation in Africa and that we could therefore renew these springs throughout the engine. In due course we were flying over Singapore and landing in the harbour opposite the Yacht Club. We were extremely surprised to see the interest that was evinced in our arrival by the goodly throng that had assembled to meet us.

Conditions for the seaplane were now becoming ideal, for as at Penang, we just landed on calm waters, shut off our engine, and awaited the motor launch which a few moments later came alongside and took us in tow. At the same time an anchor strong enough to hold a steam-ship was cast for us in a convenient spot at our own direction. These little affairs were easily dealt with and soon we had stepped on the launch and were being received at the pier by the Colonial Secretary. A few moments later we were sitting on the lawns of the Yacht Club which overlook the harbour where, about two hundred yards away, our seaplane was swinging gently in the breeze.

There had been a question, before starting this flight, as to whether or not we should carry dress clothes. With the extra weight of floats and our huge petrol capacity, I had considered casting aside dress formalities and refusing all invitations to public functions, just getting down to the actual job of the flight alone. But at the last moment (knowing well what our various kind hosts would be) we decided to put in a dinner jacket and a couple of shirts. Therefore I was O.K. at Penang and again at Singapore, but Ward who, it will be remembered, had joined me from the Air Force at Basra at a moment's notice, had only just time to cast off his uniform and push what few civilian clothes he had into a bag before we started. At Singapore we were separated for the night, and when I heard of the dinner in our honour I was a little perturbed on Ward's account and even sent a message explaining the difficulty. Imagine then my surprise on arriving at the function to find Ward, immaculate in dress kit, making me feel quite shabby beside him! I noticed at dinner that he sat very upright, with shoulders squared, but I learned afterwards that there was a

sinister reason for his splendid carriage, for he confessed next day that he had been scared stiff that some of the pins that had been so lavishly employed in fixing him in his horrowed suit would come away!

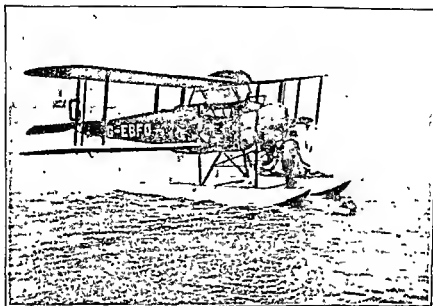
A whole day was spent at Singapore in looking over our engine and machine. I found it most difficult to ascertain anything definite about the weather in these regions. There seemed to be no rule as to when the rain might come, and there seemed to be no seasons. During the whole year the temperature at Singapore is invariably somewhere between 80 and 90 degrees Fahrenheit, and the rain so far as I could make out might come at any time. One might have a storm early in the morning, which would clear up later in the day. On the other hand it might be clear in the morning with heavy storms in the evening. It might rain the whole night long and be fine all day, or it might pour a deluge from sunrise to sunset and be fine all night. Then again it might be misty with drizzle all day, or the same conditions might arise in the evening after a clear morning; or, as we had it on the day of our departure, drizzle and had visibility in the early morning. The extraordinary thing was that nobody could forecast the weather for an hour. No one seemed to care what it was going to be, and, so far as I could gather, it might be anything at any moment at any time of the year. I believe, however, that with a good meteorological service and reports from certain outlying stations, the weather might be far more easy to forecast than in the British Isles.

Our next flight was a short one—a mere two hundred and seventy miles from Singapore to Muntok, on Banka Island. At Muntok there was no sheltered water and we had to land in the open roads in rather heavy breakers, and when I left the machine, after having our mooring shifted closer in to get what protection there was from the piles of the jetty, I felt somewhat worried, for the wind was increasing and the waves were tossing her about in a very violent manner. In fact I stayed quite a long time wondering what I ought to do, when I was finally forced ashore by the heavy rain and the approach of night. I was content that she would not break away from the mooring; a seaplane exerts very little pull as she swings right into the wind in a gale, offering very slight resistance as it blows straight through her.

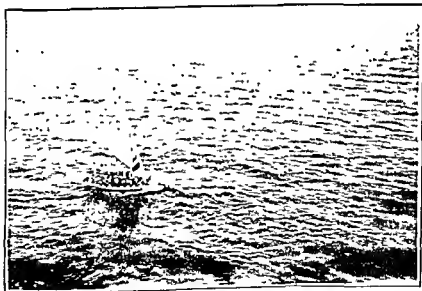
We were now in the Dutch East Indies and were staying at the rest-house in the village, situated on a high hillock overlooking the sea. The situation would have been delightful but for the heavy rain which kept us indoors. Somewhat worried, I turned into bed about eleven. According to Ward I must have had a bad nightmare, because about 2 a.m. I woke him with a shout, entreating him to throw the anchor out as the house was adrift, and evidently I took quite a lot of pacifying on this point.

On the following morning the sea was a little calmer and, after saying goodhye to our Dutch friends and experiencing a rather bumpy departure, we found ourselves once more in the air, flying down the Sumatra coast-line towards Java. The Sumatra coast, between Banka and the island of Java on its eastern shores, runs directly north and south and is one long, lonely, desolate swamp, fringed with heavy tropical forest which is partially flooded by the sea at every high tide. For three hundred miles along this coast we did not see a sign of life, with the exception of about three odd native fishing huts. These huts are built on high piles or rickety-looking sticks which stand out about twelve to fifteen feet above the water of the mud flats along the coast. Evidently it is safer to live out over the shallow waters along the coast than in the dense jungle on the land. I noticed that it was more inclined to rain over the forest lands than out over the sea and that the low clouds, which seemed to hang right over the tree tops as we followed the coast-line, ended suddenly with the beach, so that it appeared as if these banks of drifting mist were formed by the tropical jungle itself. At one point they lay heavy in the air about a hundred feet above the trees, and every few hundred yards there seemed to be a pillar of mist rising out of the forest and drifting upwards into the cloud above, so that one had the impression of thousands of bonfires all over the jungle. It was fortunate that this phenomenon ended suddenly with the sea-border, for it would have been most difficult to have flown through the mist, as in many cases the clouds came down to the tree-tops themselves.

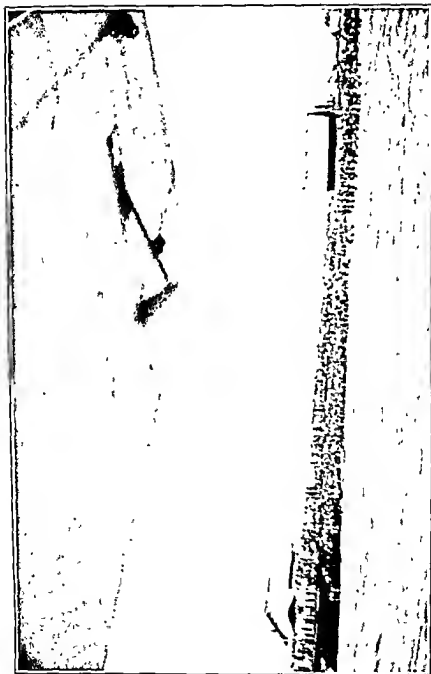
At last we came to the point where we had to cross over the open sea to the island of Java, and when within about fifty miles of Batavia the weather suddenly changed and I could tell that we had flown into a permanent fine-weather



MOORING AT SINGAPORE



FISHING BOAT OFF JAVA



THE CROWD AT BINA

can also run at an incredible speed and catch their prey, which they tear to pieces with their haods, each finger of which has a terrific talon. It is quite common for these claw-hands to be a foot across, with talons six inches long. I learoed from my Dutch friend that when they have dismembered their victims, they swallow the purtions whole. An Americao expedition had just visited the island with the object of catching these giant land-lizards alive, but although they caught many they were finally able to get only about eight specimens away, four of which went to New York, while the remaining four were given to the Dutch authorities. Two of these I understand were sent home to the Amsterdam Zoo and two were destined for the Zoo at Surahaya. I had the good fortune to see the latter two in captivity at Bima, and the larger of these was about fifteen feet in length. They were certaioly the most loathsome creatures I have ever seen.

It was extraordinary to find how much stir was caused by my dispatch about the Dragons of the Island of Komodo, and how every newspaper made them grow day by day. To fact, one of the leading papers in Rangoon had a gigantic headline stretched across the whole sheet which told of land-lizards ninety yards long, while fifty and a hundred feet were very common speculations of quite conservative papers.

From Bima we continued our journey eastward, this time flying south of the island of Flores to the island of Rotti, until at last Timor came on the horizon. Ever since we left Sumatra we had been flying against a steady head wind and I was glad to learn that the same wind would be blowing ou our return journey, so that whereas it had been a disadvantage on the outward trip we should have the benefit of a following wind on the homeward flight. On this part of the journey we constantly passed over shoals of whales, and in the clear waters beneath us from a thousand feet we often saw weird giant fish of which I was never able to give a good enough description for identification because we were oot low enough for close observation.

With the naked eye we had magnificent views of the ocean bed through mauny fathoms of water, but somehow the camera seemed unable to capture all that we could see. Owing to the general roughness of the sea in the open roads at Kupang we landed in a little bay a few miles to the south, at Tani, and

here we found that the Dutch authorities had most courteously placed one of their government steamships at our disposal. As we approached we could see S.S. *Gemma* lying at anchor, and between the steamer and the shore was the red oil-drum with a hook on top which was our mooring. After circling round the steamship, which appeared to be crammed full of ladies, we landed on the water and taxied up to our mooring, which Ward successfully hooked from the float-side.

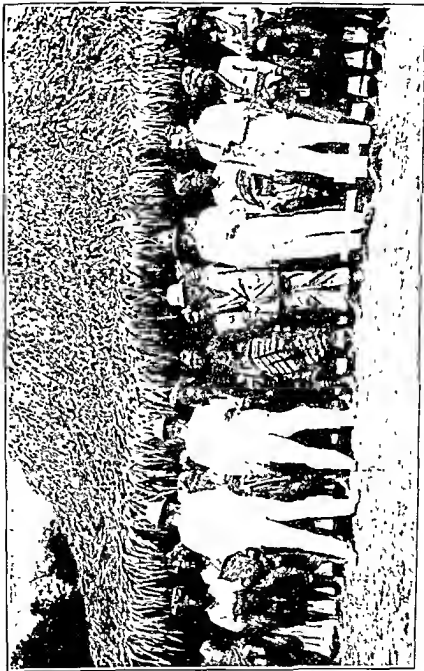
Aboard the *Gemma* there seemed to be the entire population of Kupang. Our arrival had been made the occasion of a general holiday and, by the kind permission of the Commodore, everyone was having a joy-trip.

I do not think the ladies in that part of the world had seen much aircraft before, and probably looked upon an aviator as a kind of super-being, or an inhuman monster. All I know is that it was most embarrassing when, after climbing up the gangway and shaking hands with the captain, I found scores of pairs of feminine eyes centred unwaveringly upon me. After the little reception was over we were allowed to wash, change and make ourselves more or less respectable, and later in the afternoon, while Ward went back to the seaplane to prepare for the next day's flight, we steamed up to Kupang to drop our load of sightseers. It was during this little voyage that I had ample time to prepare my dispatches, and later on still more time for getting up my vast arrears of correspondence and reports.

Our next flight was to be the longest jump over the sea of the whole journey, for after leaving the island of Timor we had nearly five hundred miles of ocean to cross before we came to Australia.

Naturally we were quite confident about our engine and machine and we knew that unless anything very unforeseen happened it was highly improbable that they would let us down. Really all that had to be done was to steer a good compass course and resign ourselves to a few monotonous hours of flying out of sight of land, relying on our compass to bring us eventually to our destination.

I had arranged that our departure and arrival should be watched at each end of this passage; at Kupang the Dutch authorities were going to wireless to the receiving station at Darwin the time of our departure, also the compass bearing



WITH DUTCH GOVERNOR AND NATIVE CHIEF AT KUPANG

that we were going to take over the sea.

At Kupang a long cable was waiting for me from Colonel Brinsmead, the Director of Civil Aviation in Australia, informing me that on receipt of news of our departure from Kupang, H. M. S. *Geranium* of the Royal Australian Navy, would watch our flight over the sea and, if we did not arrive at Darwin at the scheduled time, they would "take the necessary action." What the "necessary action" meant I hardly knew, but the message gave us a distinct feeling of security.

So it came about that we were up soon after dawn and by 7 a. m. were in the air heading for the southern corner of the island of Timor, where we took up our compass bearing and set out over the sea.

Our instrument was perhaps the finest aeroplane compass in the world. It is known as the Hughes Aperiodic and is the result of exhaustive mathematical research and experiment during the latter years of the war. The head wind still prevailed, for we were flying right into the teeth of the south-east trades, and in order to avoid the main force of this gale we flew very low; in fact our average height over the sea from Timor to Darwin must have been somewhere in the region of fifty to a hundred feet. The direction of the wind continually changed a little; first of all it would be blowing head on to us, then it would veer a bit to our port, then again it would get over to our starboard; but it was always against us, and as it veered so I allowed a few points on the compass to rectify the drift. This kept us on an approximate compass course. Owing to the fact that I had to pilot the machine, it was impossible for me to do any real navigation, for in order to navigate properly it is necessary to have an experienced navigator on board who has his hands free to do that job alone. All the navigating that I could do was to fly on a dead reckoning, having procured my bearing with a protractor on an Admiralty chart before I left Kupang. Beyond this, any alterations that I made in that course were done purely by guess work and from a certain amount of practical experience.

When about twenty minutes had passed, the land began to fade away behind us—the visibility was not very good that day—and soon we were out over the open sea, settling down and resigning ourselves to three or four hours flying towards

the reliefless horizon.

First of all I calculated the shortest time in which we could do this jump, then I computed the longest time that we ought to take; and so I worked out these estimates on my watch, because I realised that if land were not sighted in a given time then my course must be too northerly, in which case I should have to fly due south to hit the Australian continent.

I had been told that the visibility might be a hundred and fifty miles, and so when a certain time had elapsed and land failed to appear in the distance I began to get a little perturbed. But after thinking the matter over I came to the conclusion that perhaps the visibility was bad that day and that therefore I must continue on my present course until such time as I ought to see land if there were no visibility at all. Now when this limit was reached and there was still no sight of land the situation became very worrying, because it meant one of two things; either that the head wind was much stronger than I thought and was holding us back, or that we were not steering a correct course but were perhaps drifting north of the island of Melville. At last I decided that it must be the wind that was holding us back, so I still held on to my original course, peering ahead all the time to catch a glumpse of land. Several times I thought I had sighted the distant shore, only to find that the wish had been father to the thought, and what I had mistaken for land either disappeared as we drew nearer or turned out to be a shadow on the water or some change in the colouring owing to a local coral reef or some such formation.

All this time our engine purred perfectly. Hours passed by and our petrol got lower and lower, until I began to estimate how long it would be before it gave out. Then again I considered how the machine would land on the rather rough water underneath; and if it did land safely and there was no petrol left, how long we should keep afloat and how long we could live on the rations that we had aboard. We did not give way to depression however, but simply kept on our course in the belief that we should come out safely as on every previous occasion.

At last a faint shade appeared on the horizon—a dim outline with a little kink in it which did not alter as we drew nearer—and at last I realised that it was land ahead and shouted

through to Ward to tell him the glad news.

The coast of Australia is extremely lonely and desolate in this part and we had no idea, if our compass course had failed, where we might strike it. But at the moment we did not worry over that little trifle; the great thing was that land was ahead, and so, still keeping on our course, in half-an-hour we were crossing a sandy beach backed by red cliffs on top of which was a somewhat thick hush jungle. This was our first sight of Australia, and, although it was a rather desolate spot, we were extremely happy, because land of some sort was better than no land at all.

After climbing a little to get a better survey of the country we discovered that, after coming nearly five hundred miles over the open sea, for the majority of the period out of sight of land, on our dead reckoning compass course we had hit our objective, namely Herd Bay, within five miles! We then proceeded along the coastline, and after about another hundred miles the harbour of Darwin came into view and we discerned the yellow funnels of H. M. S. *Geranium* waiting there to receive us.

We had been over six hours in the air and we heard afterwards that they had been very worried, especially because they had not liked my compass course, as the bearing I had given them missed Australia and almost missed the top of Melville Island; but this was easily understood, because they took their bearing from the town of Kupang, whereas I took mine from the southernmost point of the island of Timor.

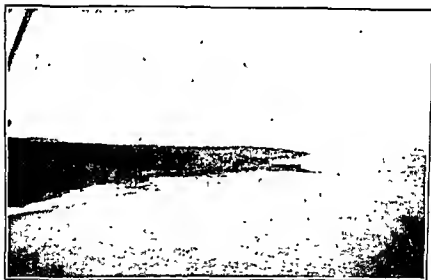
As we alighted on the water a launch came out to meet us and we were taken on board and given a rousing welcome by the officials of Port Darwin; and a greater one still by the officers and men of the *Geranium*.

I shall never forget the kindness of the Australian Navy; for apart from the fact that they had received orders from their Government to render me assistance, every man of the crew seemed only too anxious to give me a hand and do all he could to help us during our stay in Darwin.

After a little reception on board the launch, we attended to the business of getting the machine alongside the beach, where we were going to hoist three legs above her, and with a crane lift the machine sufficiently high to enable us to slip off the floats and put the under-carriage on in their place,



OCEAN BED OFF KUPANG



FIRST SIGHT OF AUSTRALIA

beyond Darwin on the homeward flight.

Our immediate route was to be right through Northern Territory to Queensland, then through New South Wales and on to Victoria. Our first day's jump was from Darwin due south over the bush to a place called Katherine, where we landed in a rather rough clearing to refuel. I am afraid the inhabitants were a little upset because we did not stay to lunch, but as we were already rather behind time and the journey was so short from Darwin to Katherine, we could not afford the time to stay and pushed on immediately for Newcastle Waters.

Once we left Katherine we were dependent on the telegraph line to bring us up on our destination, for the road was hardly visible through the hush. Not having travelled over this part of the world before, I did not realise that the telegraph lines could not be seen at all from an altitude, as the thin metal posts were invisible, and it was the clearing in the hush through which the telegraph line ran that was going to be the visible land mark for me to follow. In due course we arrived at Newcastle Waters and it was just a toss-up whether I could reach Brunette Downs before sunset; and so, after circling round Newcastle Waters for some minutes in an endeavour to find the correct track to Brunette, and thereby wasting a considerable amount of time, I decided to land at Newcastle for the night.

I was learning that, although I knew something about map-reading and a little bit about navigation, a course in path-finding would have been more useful for the back regions of Australia. There are no real maps of this part of the world, at least, not in the sense that an English surveyor would understand.

It must be remembered that we were now in one of the loneliest parts of Australia; I suppose we were as far "out-back" as one could possibly get. It was a place where living was too hard for women-folk—or at least it was allowed to remain too hard for them to exist there.

Soon after our machine came to rest on the aerodrome an old car jolted out from the huts near by to meet us. We found that the local postmaster was the man in charge, and the local police sergeant also came upon the scene. Before long we had around us a dozen or so companions who all

seemed extremely interested in the machine, although I could not help noticing at the same time that conversation did not exactly flow ; one word in Newcastle Waters seemed to serve the purpose of two or three hundred in any other part of the world. So there was a great deal of unusual silence after we landed, and Ward and I set to work to refuel the machine. But when we started to carry the heavy cans of petrol which had been roughly stored under some hushes near by, our new friends came forward readily—still without a word—and helped. Then I asked the postmaster whether it would be possible for us to get a shake-down for the night. He said "Aye". So I got our hags out of the machine and asked my silent friend whether we might beg a lift in one of the cars (there were two on the scene) down to the farm. As I stood with a hag in each hand he simply looked at me, jerked his head towards the rear car, which I took for an invitation and got inside. It was somewhat unusual perhaps, but I began to appreciate these tacit gentlemen and reflected on what an unnecessary amount of chatter goes on in our everyday life in the big cities. Certainly it was a wonderful rest cure !

We found ourselves in a shanty made of a few wooden piles supporting a tin roof, with hexagon wire around. A long table covered with a piece of linoleum ran down the centre, on which were half a dozen tin plates, while in the middle there were three Tate sugar hoxes turned upside down. A few moments later three or four sturdy looking men rolled into the shelter, lifted their feet over the form and sat down. Then the postmaster took his seat at one end of the table and another robust looking fellow, dressed merely in a singlet and slacks, who apparently filled the role of cook to the party, sat at the other end of the table. Ward and I had the plank on the remaining side of the table to ourselves. As the three Tate sugar hoxes were lifted from the table I realised that they were improvised dish-covers, for underneath them were three dishes of food, to which there was a mighty rush of flies. We all received helpings from the postmaster's hands and everyone took it in silence. As each man finished he handed up his plate for more, and was replenished by the postmaster without a word ; and as each man finished his meal he rose and departed in absolute silence, so that within a short while we were alone with the postmaster.

We slept well that night, for luckily there was a store of new blankets from which Ward and I were supplied and therefore we were very warm in spite of the fact that there were quarter-inch gaps between the logs of our cabin walls. In the early morning it was extremely cold, but the air was fine and fresh when we wended our way down to the landing ground, started up our engine and said goodbye to our kind and silent friends.

Then we headed on our way, taking the path they told us would lead to Brunette Downs. My impression of Newcastle Waters was that here were men living out in the wilds and roughing it all unnecessarily, for little or no extra expense they could live so pleasantly. However, I discovered that this is one of the problems which is fast dying out in Australia because the coming generation demands a higher standard of living, compatible with the general advancement of the world.

We found it impossible to fly on a compass course over Northern Territory, because there was no definite feature to come out on at the end of the journey, with the exception perhaps of a small town which could very easily be missed on the vast open rolling plains of northern Australia. Furthermore there were no maps which were sufficiently accurate to follow, and the only way in which one could find one's way really successfully on a first flight over this country was by following the car tracks from place to place. This is extremely difficult the first time one goes over a route but, owing to the tremendous visibility and the ease with which one familiarises various points along the way, a second trip is rendered very simple. In fact after a fair amount of flying in Australia one develops a sense of direction which makes aerial navigation in that vast continent one of the easiest things in the world.

We soon got to Brunette Downs, the head-quarters of one of the biggest cattle stations in the world. The moment we landed on a clearing near the house a car dashed out to meet us. The whole country almost the entire way from Newcastle to Brunette is one huge natural aerodrome. The roads consist of tracks over the open plains, on which, once they have been fairly well cleared, it is possible to do anything from sixty to eighty miles an

hour in the right sort of car.

From Brunette we continued our journey to Camooweal, and when we came to Alexandra Station, which I believe is one of the three largest cattle-stations in the world, we discovered about ten different tracks leading southward, whereas on my rough map I had only two tracks marked. Owing to the fact that the cattle had stamped all round the station it was impossible to tell which was a car track and which a cattle track. After starting down one track I soon sensed by its general direction that it was wrong, and then started on another which in its turn dribbled away to nothing. At a third attempt I hit the right track which lead me on towards Camooweal; but even so, rather than go too far out of my direction, when I espied a car coming towards us I took advantage of the wonderful country-side and just landed near by and ascertained from the occupants whether I was on the right route or not. It was a novel experience, this of being able to land anywhere at any moment, and after a cheery little chat with the two stalwart fellows in the car we said goodbye, and as they pursued their way northwards we took off again and flew southwards.

Camooweal is just in Queensland, a little town fighting its way in the out-regions of Australia. It happened to be the terminus of the famous Q. U. A. N. T. A. S. air route, and thus we found someone waiting on the aerodrome to give us any assistance we might require with our machine.

That night a dance was given in our honour. It was a very happy gathering of wonderful people, because despite the grim pioneer work and general hardships of the life they were leading so far away from all the amenities of modern civilisation, they seemed far more alive to the real possibilities of Australia than almost any other people I met, and I have come to the conclusion that it is the folk who live in these out-back towns of Australia who are the real backbone of this great continent.

From Camooweal we continued our journey in the attempt to fly the whole length of the Q. U. A. N. T. A. S. air route in one day, and we passed right over the mining district and mountainous area towards Cloncurry. This was the first time since reaching Australia that we had passed over hilly

large herds of kangaroo, evidently driven into this district by the drought. I can well remember that in one herd there were three or four hundred. The remarkable thing was that, whereas when we had flown low over herds of animals in other parts of the world they always galloped away from us, the kangaroo herds always galloped towards the machine. Whether this is curiosity or a form of fear I do not know.

The sun was sinking fast and still no sign of Charleville; nothing all round us but thick forest. Ward was looking anxious and I was feeling it, because I had to rely entirely upon my compass to hit our destination. It had not been a very long compass course—something under a hundred miles—and I felt sure I was on the right track, but still no sign of Charleville. According to my watch we ought to have been there. The sun was getting lower and lower and I estimated about twenty minutes more daylight. I was just beginning to make up my mind that I should have to land on the first fairly open space I could find and risk wrecking the machine, as it would be very foolish to continue flying in the dark with the forest beneath, when suddenly, without any warning, we came upon the town hurried in the forest about a quarter of a mile ahead, and before we had realised it we were flying over Charleville. It happens that the trees surrounding the town are very tall and the houses are rather low-built so that from a fairly low altitude Charleville cannot be seen until the aircraft is practically over it.

We soon landed on the aerodrome and were greeted by an enthusiastic crowd, many of whom had motored over bush tracks for anything from a hundred to two hundred miles to see our machine.

I quickly learnt in Australia that the people of that country think nothing of distance.

That day we had flown about eight hundred and twenty-five miles, and so we thought we should easily be able to keep our appointment with Sydney—over seven hundred miles away—on the next day.

That night we were entertained by the town and I was struck more than ever with the enterprise and tenacity of purpose of the people in these smaller towns of Australia. It so happened that we had overtaken Colonel Brinsmead

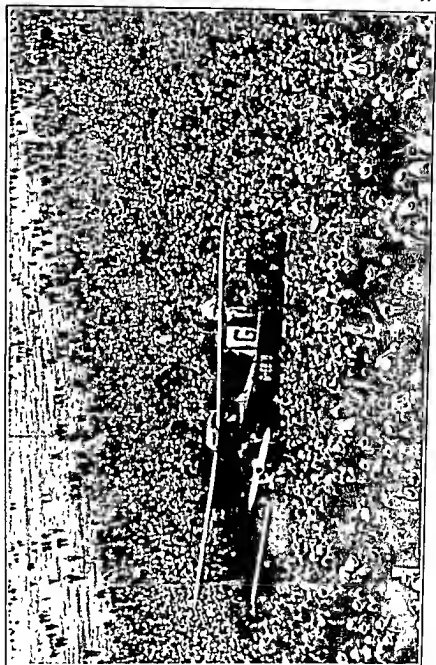
It was a delightful trip over country very much like Wales or the Lowlands of Scotland, and though we had a little rain on the way we experienced no real difficulties.

According to plan a single machine met us about fifty miles out of Melbourne, while a little further on another escort picked us up, and thus we arrived over the aerodrome at Essendon.

Now there had been a record crowd of sixty-thousand people to greet us at Sydney, but at Melbourne we were amazed to find a crowd of at least a hundred and fifty thousand; in fact, one of the largest I have ever seen in my life. I looked at Ward through the window of the cabin; he looked back at me; and I think we were both a little overcome. It was obvious that the people of Australia were more alive than most—especially those at home—to the importance of aviation to the future of the Empire. I think it was for this reason that they turned out in such overwhelming numbers to greet the little 'bus which had brought us all the way from the home country.

As I looked down on the crowd beneath me I could see that it was ready to break through the barriers, and I realised that if I did not get down at once I should not be able to land at all because the ground would soon be packed with humanity. A special clearing had been made in front of one of the hangars, to which I was supposed to taxi the machine, the plan being that railings would be erected round the aeroplane and all the addresses and such-like would be made from an adjacent platform. Before I landed I could see this would never work, and so as I neared the ground I decided to taxi as hard as I could up to the hangar immediately on landing, in the hope that the doors would be opened and I should be able to get inside the hangar before we were completely overruled.

The moment our wheels touched the ground the crowd on all sides broke the barriers and rushed at us. I turned the machine as quickly as I could and taxied full out for the hangar, while the crowd got denser and denser. They seemed to have an utter disregard for the propeller, which being an all-metal one would certainly have cut in half anyone it touched; behind, they were falling over and breaking our tail. At last the crowd became so overwhelming that



THE LANDING AT MELBOURNE

Photo Central News

we could not move, and I simply had to stop the propeller. Then there was a mighty rush, and the police and Air Force literally had to extract me from the cock-pit and carry me through that astounding throng towards the hangar. As they opened the hangar door to get me inside, the crowd squeezed in too, whereupon I was rushed to the far corner and thrust into a small iron room where I was locked in. Thus it came about that within a few moments of landing at Melbourne I found myself a prisoner in a corrugated iron room with barred windows up to which boys were clampering, and a tin roof on which more boys were dancing!

A little later Colonel Brinsmead came in with the Lord Mayor and other representatives, and they told me that all the arrangements for my official reception had been dashed aside by the enthusiasm of the crowd. I feared for my machine, and was much relieved to hear that it had been safely pushed into the hangar and that Ward was found to be still alive.

We spent a whole fortnight in Melbourne, during which time I think I worked about eighteen hours a day. Letters poured in from every part of Australia, and I felt it my duty to answer them in gratitude for their writers' kindness in taking such an interest in the enterprise. I was provided with a staff of secretaries and thus I was able to cope with the two thousand odd letters that I received.

I came to the conclusion that Australia was the most perfect country in the world for flying, and that aviation might very easily alter the whole national life of this great continent by means of the light aeroplane and the privately-owned aeroplane. The isolation problem on the out-back farms could be abolished entirely if every station had its own aircraft, because whereas at present it very often takes days to visit a friend or to get supplies, air-transport would reduce this to minutes or hours. I think I have said before that the continent is one vast natural aerodrome, and the climatic conditions—they never have fogs or blizzards or snow—permit three-hundred-and-sixty-five days flying in the year.

Australia is alive to flying, and during my visit I noticed that three light aeroplane clubs came into being; one at Sydney, another at Melbourne, and a third at Adelaide. They were all using the little De Havilland "Moth" which had been developed at home, and in one of which in my earlier

days I had managed to fly from London to Switzerland and back in a day.

During our stay at Melbourne we shifted our machine over to the Australian Air Force aerodrome at Point Cook, where every facility was given us to overhaul her. Ward set to work on the machine, assisted by Mr. Capel of the Armstrong-Siddeley Company, who had come out to Australia on business.

On the return journey I hoped to put up a bit of a speed record, which would mean two big jumps a day. Now I knew this would be too much work for Ward because it entailed flying from dawn until sunset every day with but one brief halt at mid-day in which to refuel, thus leaving insufficient time for one man to attend to machine and engine in the available daylight. Therefore I asked Capel if he would care to fly back with us, for although the machine was already overloaded as a seaplane I thought that by throwing some extra clothing overboard and lightening up all round we might be able to take his extra weight.

When the day came for our departure from Melbourne we said farewell to the many new-found friends who had done all in their power for us, and with many regrets flew on to Adelaide.

Time was getting short, for we had to get back to Darwin (to avail ourselves of the *Geranium's* great assistance in putting on our floats again, before she sailed on her southern trip); so to our sorrow we were only able to stay one night in the delightful city of Adelaide.

The return flight was to be right up through the centre of the continent, more or less along the great telegraph route that runs from Adelaide due north to Darwin. Our first jump from Adelaide was to Oodnadatta, the terminus of the South Australian Railway. Our way took us up the eastern shores of the Gulf of St. Vincent, thence over vast tracks of arable land which I learnt afterwards is some of the finest corn land in the world. For miles and miles we flew over prosperous looking farms until we came to Spencer's Gulf along whose shores we cruised to Port Augusta. On again up the shores of Lake Torrens until we converged with the railway, and so we carried on passed Lake Eyre. We were now experiencing a very severe head wind and I doubted if we would be able to reach Oodnadatta

on our petrol capacity. So we landed at a place called Marree where I knew we could get sufficient petrol to carry us on to Oodnadatta.

In this part of Australia it is possible to land practically anywhere, so when we came to Marree I simply put the machine down on the most convenient looking spot near the town. Very quickly everybody in that little outpost flocked over in their cars to greet us. We stayed long enough to refuel and then pushed on again for Oodnadatta, where we arrived in good time before sunset. We had left the rainy and cloudy weather far behind and were now in a land of permanent sunshine and blue skies, with hard rocky mountains on the horizon and vast open spaces below. The country reminded me very much of certain parts of Spain.

After a pleasant evening at Oodnadatta came the jump due north to Alice Springs. Soon after getting into the air I noticed that the character of the country was changing to one of bush and pasture, perhaps one of the greatest cattle countries in the world.

The only means I had of finding my way was by following the track of the telegraph line, which is distinguishable by the passage that has been cut through the hush, along the centre of which the telegraph posts run. Very often it was quite impossible to see any sign of the track immediately beneath me, and it was only by climbing to a great altitude and looking a long way ahead that I could pick up the definite straight line where it cut through odd stretches of hush before it became invisible again on the open plain.

Eventually we sighted the Macdonnell Range, said to be the oldest mountains in the world, and, just a few miles beyond, Alice Springs in the very centre of Australia. A landing ground had been prepared by Sergeant Stott who has so cleverly administered this area for the last ten or fifteen years and is generally looked upon as the great man of the district. Alice Springs is a beautiful place with a delightful climate and charming scenery, and a visibility so clear that my impression was that I could not take off from the aerodrome without running into the mountains. The Macdonnell Range towers up like a great rock wall overhanging Alice Springs and I was amazed to hear that it was at least three miles away. Owing to the wonderful visibility I had lost all conception of distance.

From Alice Springs we continued northward until we came to Newcastle Waters once more, but on the way we landed at a farm called Banka-Banka. It happened in this way. Before leaving Adelaide I had received an urgent telegram from a motor transport owner to carry a spare part up to Banka-Banka where he had a car which had broken down. In the ordinary course he would have been delayed six or nine months until the spare arrived by the usual means of transport through central Australia, that is by camel. I understand that without the camel the interior of Australia certainly would never have been conquered. Now it is possible to make an aerodrome outside the front door of most farms or stations in Australia, and therefore when we arrived at Banka-Banka we just came down on the ground prepared for us and delivered the spare part, thus reducing the car owner's delay from six or nine months to exactly one week. Surely this is one good proof of the usefulness of aviation in Australia.

At Newcastle Waters our old silent friends were waiting to receive us and quickly helped to refuel our machine. As a little souvenir we had brought them a nice large ham; their yearly provision train which was coming up from the south by camel was already six months overdue, so our lump of bacon was much appreciated.

Then we took off again for Katherine, experiencing great heat on this part of the journey. I afterwards learnt that Daly Waters, which is half way between Katherine and Newcastle is one of the hottest places in Australia and often registers 105 and 110 in the shade.

We spent the night at Katherine under conditions somewhat similar to those at Newcastle Waters, and we wondered why, because there is no earthly reason why everything should not be made quite comfortable and pleasant at hardly any extra cost. We put up at the local hotel, a rambling shanty built mainly of batons and sheets of corrugated iron. Our host, an Irishman, was well content with his lot, having a family of five or six charming daughters who, he boasted did all the work and ran the place.

The following morning our host ran us out to the flying ground, about five minutes away, in his Ford; he had brought us in the night before and had also superintended the filling of the petrol to the drome. Nevertheless we were surprised



to receive a hotel bill of £ 3.10.0 for our meal and shakedown, and still more surprised when I paid it to hear our host muttering something about charging up his expenses to the Government. I quietly explained that the flight was run entirely on private contributions and that the Government had nothing at all to do with my expenses, which had to be paid out of the funds that I had collected. This was obviously a great surprise for our friend, who said "What, Government not paying for this job?" and tried to give me back £ 2, but without success.

In the air once again we headed for Darwin, arriving according to plan on September 2nd to find that *H. M. S. Geranium* had returned from a cruise with the Governor-General to Broome and was already awaiting us in harbour. Furthermore they had despatched a party of men to the beach against our arrival. The tide was fairly low and I had no difficulty in landing on the sands. Half an hour later the scaffolding was up above our machine and she was being lifted from the ground so that the undercarriage could be unfastened. In the meantime the floats were lifted off the jetty, lowered into the water and towed round to our beach, and the work of converting our aeroplane once more into a seaplane was quickly accomplished.

Commander Bennett of *H. M. S. Geranium* begged me not to worry about the coming sea journey to Timor for, having ascertained the course we should take, he declared his intention of standing by at Darwin until news of our safe arrival at Kupang should reach him by wireless. In the event of that message failing to reach him within eight or nine hours, he would put to sea and follow up the hearing which I had taken and come in search of us. He asked me, in the event of our being unfortunate enough to have to land on the water, not to attempt to sail the seaplane by rigging up sheets and such-like, but just to wait quietly in our course because he would be able to allow in his reckoning for any drifting currents and thus stand a much better chance of finding us than if we sailed off our course in an endeavour to reach land on our own account.

On the morning of our departure we wheeled our seaplane down the beach on two wheels separated by a shaft through a hole in the floats. But when we had floated her on



PERSONNEL OF THE RETURN FLIGHT

Photo David Ward

A. J. Cobham

C. Capel (seated)

A. H. Ward

Photographed on arrival at Sotteville near Paris.

the water we found that the iron shaft that had been passed through the axle housing in the floats had jammed and we could not get it out. The only thing to be done was to saw through this iron bar, which was two inches in diameter. This took a long time and in the middle of the operation the saw was dropped in the sea and we had to get another one; so that our departure from Darwin was delayed so much that we knew we could not reach our original destination, namely Bima, before nightfall. We therefore had to content ourselves with making Kupang only that day.

CHAPTER V.

THE FLIGHT HOME

It had been my ambition to lessen the distance in time between England and Australia by making a dash flight from Darwin. My plan was to make two jumps per day, keeping up anything from seven hundred to a thousand miles continually between dawn and sunset.

Our flight from Darwin to Kupang was just as successful as the outward journey had been and, owing to the fact that we had a following wind, it took about one and a half hours less time. On the following day we had another good flight from Kupang to Bima, and from Bima on again to Surahaya, doing over eight hundred miles. The day after we jumped from Surahaya to Batavia and from Batavia to Muntok. I remember arriving over Muntok and being undecided whether to carry on to Singapore without landing or not. I had sufficient petrol on board but I feared the daylight might fail, added to which it had begun to drizzle with rain, so I decided to put down at Muntok for the night. It so happened that this decision altered the story of the whole flight, for had I carried on to Singapore that night and in consequence been ready to start the following morning for Penang and make Victoria Point the same night, I should have missed the worst monsoon storm of the whole season in Burma and might have been in England fifteen or sixteen days after leaving Darwin; but through losing that half-day we collided with a terrible storm which delayed us for days and days.

After spending the night at Muntok we departed early the next morning and arrived at Singapore about 9 a.m. After refuelling we lunched with the Colonial Secretary and then continued our journey under ideal conditions to Penang.

When we took off from Penang we were confident we were going to be in Singapore, about eleven hundred miles away, that night. All went well until, as we flew north, we lost the protection from the monsoon afforded by the island of Sumatra. The moment we were beyond its most northerly point we discovered that we were now in the full blast of the monsoon sweeping across the Indian Ocean. The weather entirely changed and in the space of a few miles we had run into very heavy rain. The wondrous rock islands that we had seen on the outward journey basking in brilliant sunshine, their vivid shades of green contrasting with the bright blue of the sea, were now turned to dark grey masses that loomed dimly through the mist and rain out of the black water. Around me in every direction violent rain-storms were falling, and as I flew north the storms which were blowing more or less from the west drifted across my path. It was always a question as to whether I should fly in front of the storm and get round that way or whether I should fly round the back of the storm. For fifty or sixty miles I was successful in dodging between these deluges without being caught out, but at last I was completely surrounded and found myself forced to go straight ahead through the downpour. The visibility now, instead of being as on the outward journey sixty or seventy miles, was reduced to a matter of yards, and this, coupled with the handicap of indifferent maps, made finding my way most difficult. At last we were completely buried in a heavy storm with no visibility at all, when suddenly I sensed more than saw a particularly black mass in front of me. I did a steep vertical bank just in time to avoid a gaunt rock island rising five hundred feet out of the water. After this I turned and flew back on my tracks into a brighter atmosphere, endeavouring to make up my mind what to do for the best, and deciding that it was not safe to go blindly on through such bad weather. In the cabin I think they were beginning to realise that something was wrong. I believe Ward had just wakened from a refreshing sleep, for usually, so Capel told me, he slumbered blissfully through most of our

troubles in the air.

After a little time I about-turned and again attempted to fly between the storms ahead. We were now about thirty miles from the coast of Siam, south of the island of Puket. As we crept on, keeping low over the water, we could see the dark mountains of rock, sinister and forbidding through the haze of the rain-sodden atmosphere. At last I decided that it was impossible to carry on and that I must take shelter somewhere until such time as the weather cleared a little and gave me better visibility. About this time we were passing over an irregular island where I noticed on the leeward side the water was calm. There was also a little sandy beach near by and so I decided to land forthwith and attempt to lie at anchor until the weather improved.

We landed safely, and within a few seconds Ward and Capel were out on the floats. As I looked over the side I could see that right up to the supposed sandy beach the ocean bed was a mass of rocks, and what sand there was formed only a tiny fringe along the shore. It meant running the risk of knocking our floats in if by chance we should touch one of these rocks in the shallows. I therefore quickly decided to turn the craft about and head for the sea a little with the object of taxiing down the coast in search of a better spot.

Taxiing crossways over rollers was no easy matter, but luckily within a few hundred yards we found another little sheltered bay with a really good sandy beach. We decided to throw our anchor overboard and as I was reluctant to stop the engine before we were finally moored up, there was rather a big drag. When the final pull came Ward found to his dismay that he had not fastened the end of the rope to the hook on the floats so that it was too much for him and he was faced with either going overboard or leaving go. Thus it came about that we lost our anchor. The only thing to do now was to beach the bus, so I turned her head into the shore and as we gently drifted up the sands Ward and Capel jumped into the water and drew the floats up on to the silver-sand beach. The jungle on this island was dense and came right down to the water's edge, and we could see it would be impossible to penetrate it. Our first job was to lash our towing rope to the nearest palm tree, which held our machine in posi-

tion. Ward and Capel then began to look around and decided they must begin by lighting a fire. It is true they were both in soaking wet bathing costumes, and though we were in the tropics the complete absence of sun made them feel cold ; but I think too that the romance of the situation, coupled with memories of the reading of their early youth, were largely responsible for the lighting of the fire.

For my part I could see no romance about the situation at all. Here we were on an uninhabited island about forty miles from the mainland, right off the beaten track, with no prospects of food of any description other than our emergency rations, which I calculated would last about three days. We were simply locked in on this tiny beach with a dense wall of jungle behind us and giant rocks running out to sea on either side. Our only hope was that the rain would stop and we could get away from the place. However, Ward and Capel were ideal companions in these circumstances and made light of the whole adventure. The fire was quickly lit with the aid of petrol and a sheet was rigged up among the trees under which we stood for shelter from the downpour. Presently we realised that the tide was coming in, and where we were to get to when it reached the jungle we did not know. We were also anxious about our floats which were being constantly humped on the beach as the tide lifted the craft, and we found it necessary to draw her up higher and higher every few minutes.

At last I decided that as the visibility was lengthening a fraction we must risk taking off, and so after striking our little camp and stamping out our famous fire, we turned our machine round in the water and headed on to the open sea.

We were on the leeward of the island, that is to say, as the wind was blowing strongly from the west we were under the eastern cliff in the region of down-currents—in fact in the very worst possible position for taking off. We could not get away due east into the open sea as this meant directly down-wind and I knew that owing to the rollers we should never come unstuck. So I had to take off due north across what wind there was, at the same time riding the long-way of the rollers. It was a terrible business ; we bumped and crashed along over the water, sometimes gathering up speed which lifted us high on to the step so that we were almost taking

off; only to meet a severe breaker that would hit our floats with a terrific thud and cause me to shut off and lose what speed I had gained for fear the thing would happen again. I made two such attempts to get off and failed; but the third time I hung on to it and at last I felt the machine stagger into the atmosphere. Once we hounced off the water I knew I only had to keep the machine in the air for a couple of seconds for her to gain sufficient air-speed to climb away, and finally we found ourselves cruising along in the down-currents of this dreary lee shore, whose aspect could be so utterly different in the sunshine.

I soon picked up my bearings and was successful in steering safely through several heavy showers until we came to the north-east corner of the island of Puket. Here we turned up a narrow creek which separated the island from the mainland. Once through this creek I knew we were on the main coastline which would bring us up direct to Victoria Point, about a hundred and thirty miles further on.

Unfortunately the rain had been too much for our propeller, which was of wood, and when I heard a whistling noise ahead and felt a very bad vibration I knew that the fabric was coming off, so I finally decided to land at Tanoon.

We alighted easily on the water and quietly heached the machine on the soft golden sand in front of the village. As soon as we had tied up and made her secure we were surrounded by a party of happy Siamese, of whose language we understood no more than they did of ours. We were right opposite the police hut and they very efficiently took charge of affairs for us. I discovered they had quite a good road from the village up inland, and so I decided to get to the nearest telegraph office and send messages to Victoria Point and Penang as to our whereabouts.

Before leaving, I noticed that one of our under-carriage struts was bent and surmised that we had done this in taking off from the lonely island. I left Ward and Capel to do their best to repair the damage, which happened to be on the opposite side of the same strut that had given out in the Bandar Abbas episode, and then, jumping into a motor car that these kind folks had procured, I set off in search of a telegraph office.

After journeying from one place to another I found that

scene. It transpired that the Governor of Puket, who was also a Prince of the Royal House of Siam, had heard of our predicament and had sent his secretary over at that late hour to render any assistance we might require. He had also sent a huge hamper of provisions so that our commissariat should not fail, and in view of our nationality our royal patron had tactfully included a bottle of whisky and some soda-water. We were much touched by this gracious attention and deeply grateful for such unmerited courtesy.

It rained most of the night and all the next morning, and I was beginning to think we should be there for days, when late in the afternoon there was a lull. It happened that there was a mining engineer from the north who was passing through Tanoon at this time on his way over the ferry for Puket, and he advised us to push on to Victoria Point at once. Of course we lost no time in acting on this advice and were soon in the air, racing for Victoria Point. We got there in about an hour and a half, passing through just one or two slight showers and an atmosphere that was generally heavy and overcast.

At Victoria Point, although they were not expecting us, they soon had us in tow and tied up to a mooring. That night we went to bed full of hopes of reaching Rangoon on the following day, and awakened in the morning to clearer weather which was only slightly marred by a dark and heavy horizon away to the south-west whence all the bad weather was coming.

However we did not allow this to depress us, and the dawn found us down at our machine. Soon after six o'clock we were in the air, heading north-west up the coastline. The further north we went the worse the weather became, and after defying several banks of rain we were finally defeated by a deluge through which it was impossible to fly. Apart from the fact that the visibility was rendered almost nil, the force of the rain literally blinded me. It obliterated all vision through my goggles so that they had to be removed, and I was forced to take shelter behind the screen in such a way that I could just look out sideways without getting the full blast of water in my face.

We were obliged to about-turn, when to my dismay I found that all the bad weather we had seen on the horizon at the start had raced up behind us. There was nothing for



VICTORIA POINT

water, we could not get off again on account of the unsuitable direction of the wind and the permanent rollers. Mr. Tomlinson, who was in charge of the telegraph station at Chahbar, told us we had better wait until the next morning when the sea would be calmer and the rollers would be less. Unfortunately the following morning there was a total lack of wind with very little abatement of the rollers, so that we were still unable to rise. We had about three attempts and I was almost giving up in despair, when suddenly a gentle breeze sprang up from the east. I decided to take off along the lee shore of the Cape, which was protected a bit from the rollers but which meant my taking off eventually over the land.

After another attempt had failed and I was on the point of giving up the attempt, we came unstuck and a few seconds later we were over the beach and gradually climbing.

About mid-day we were flying over Laft, and landed to find that the British Consul at Bandar Abbas had sent the famous "Felix Jones" to put down moorings for us, and in perfectly calm and sheltered waters, such as I had expected would prevail from its position on the map, we moored our craft.

A Persian clerk from the Consulate and several native servants had been awaiting us for days. They had erected a tent and had improvised a field kitchen. The camp was situated on a high spot amid charming mountain scenery on the island of Quisham, about half a mile from the dilapidated Persian village. Thus we very soon found ourselves in the cool tent through which gentle breezes played, enjoying a delightful lunch, followed by a little sleep. Then much refreshed we got to the necessary work on machine and engine, and as the sun went down and our work was finished, the servants brought the table out of the tent and laid it for dinner. After dinner when we had finished our smokes, the camp beds were put round the table and we turned in under the ceiling of a star-lit sky.

We were getting nearer home now, and as I lay on my back and looked up at the milky way I estimated how many days it would be before we reached London. I felt the worst was over. Although we had seemed a long way on our outward journey when we were at Bandar Abbas, now on the return trip, having covered over twenty thousand miles, we seemed

almost home.

Soon after sunrise, when we had breakfasted, we said goodbye to our kind hosts and were soon in the air heading on our way to Bushire. Here we found friends awaiting us in a launch with ample refreshments, and after a quick fill-up of our machine we took the air for Baghdad.

All along the Gulf I had been greatly troubled by the heat. Day by day it got hotter and hotter, and our poor old Jaguar engine which had now done so many miles without a complete overhaul, was having a very hard time, especially in getting the machine off the water in this boiling atmosphere.

It was on the flight from Bushire to Baghdad that I think we experienced almost the greatest heat of the whole trip, especially at the point of passing the extreme head of the Persian Gulf. It got so hot that the oil coming out of the engine was 76 Centigrade, and I estimated that the atmosphere at ground level must have been about 115 in the shade.

I found it most difficult to climb because this naturally needed more throttle, which again caused greater heat, and so having reached about two thousand five hundred feet with a steadily rising temperature, I throttled down and continued at this altitude. I do not think I should have worried if I had been on the outward journey with my engine fresh, but it was my ambition to complete the Sir Charles Wakefield Flight of Survey with the same machine and the same engine with which we started, and thus create a world record for the longest distance flight with the same engine.

It was getting late in the afternoon when I decided to land at Basra instead of making Baghdad that day, principally because Ward wanted to see some of his old companions. We landed safely and were soon among old friends. Next morning we were again flying northward for Baghdad with the object of refuelling and getting to Alexandretta without delay.

With a fully-loaded machine (which really meant a big over-load) we managed to get off the water at Baghdad in the hot mid-day sun and then climbed away towards the River Euphrates. The heat was terrific and our temperature again rose quickly but, by nursing the engine and assisted

by a kindly up-current which seemed to come from nowhere, we got to about three thousand feet.

Thus we progressed, passing over Ana, then Deir-ez-Zor, on to Rakka, until we came to the spot where the Euphrates bends abruptly north. At this point we crossed over the land, leaving Aleppo to the south, and after skimming the mountains once more, found ourselves suddenly with the Mediterranean before us, and Alexandretta below, nestling on the shores of a delightful bay.

Our good friend, Mr. Catoni, the British Consul, was awaiting us with his launch and quickly had us in the harbour. While Capel inspected the engine, Ward refuelled and attended to the machine, so that before sunset we were in Mr. Catoni's motor car speeding out of Alexandretta to his charming villa two thousand feet up in the hills behind the town. It was one of the most perilous motor rides I have ever had. I was far more "windy" than I had ever been during a flight, for we did a succession of about fifty hairpin bends, skirting overhanging cliffs at a speed ranging from fifteen to fifty miles an hour.

The next trip took us along the coast of Turkey to Leros, where the Italian Commander was waiting to receive us with congratulations on our flight.

Ample supplies of fuel were available, for from Karachi to London the British Petroleum Company had laid down stocks of B. P. spirit, and after a quick refuel we reluctantly took off from this beautiful harbour and headed out over the Ægean Sea towards Athens.

Here again we were among old friends and, after spending a night with Major Buck of the Blackburn Company, we again took off for our next destination, which was Naples.

When Corfu had faded from view behind us we ran into a misty atmosphere and low cloud, which made our trip seem longer than it actually was; but at last we reached the Gulf of Taranto and then crossed the mountains of Calabria to the sea on the far side. Here we experienced great difficulty, and after climbing to about seven thousand feet in order to clear not only the mountains themselves but also the heavy cloud banks that were forming in all directions as well, we managed to dodge through and get underneath the clouds on the western coast of Italy.

Here the weather had completely changed and the western horizon was a mass of heavy black cloud and thunder storms. The visibility shortened and very soon we ran into drizzling rain. As we passed between the mainland and Capri it struck me how unlike the popular imagination of such a place it looked.

Soon we were landing by Nisida Island in the Bay of Naples; we quickly filled up, but owing to the bad weather it did not seem possible that we should be able to reach Marseilles before dark, for we had already lost much time in our detour over the mountains of southern Italy.

However, the Commandant of Nisida advised us not to stay there, explaining that if the wind got much worse we should never get out of the harbour. He recommended the seaplane base of Orbetello further up the coast, where there was an excellent enclosed water from which we could get off under any conditions.

So we pushed on again through heavy rain, and a little later we reached Orbetello.

I had been very fortunate before starting this flight in arranging with three separate petrol companies to lay down supplies between London and Australia. All three of these concerns laid down their supplies from the purely patriotic motive of supporting British pioneer aviation work. It is certainly a long-sighted policy on their part, for it undoubtedly means much to the development of Empire trade.

The British Petroleum Company provided B. P. spirit from London to Charhar; The Burma Oil Company laid down supplies from Karachi to Rangoon; and the Shell Mex Company put down stocks of their spirit from Victoria Point right through the Dutch East Indies to Melbourne, so that in this respect I had been thoroughly well looked after.

The flight from Orbetello to Marseilles was full of interest for as we pushed out over the sea from the Italian coast we could see on our right the island of Elba and away to our left the great rock-mountain island of Monte Cristo; while a little later we crossed the northern coast of Corsica, out over the Mediterranean to the Riviera coast line.

The gale blowing from the north had held us back considerably, so I knew there was no time to be lost when we got to the seaplane base at Marignane, if we were to fill up and be

I fear that many a clerk was late that afternoon in returning to his office, for all the bridges were massed with white faces looking upwards, and every warehouse had its windows full. As we passed over Blackfriars and Waterloo bridges I looked through to Ward and Capel; they were taking photographs.

All three of us were overwhelmed by such a great reception and I think in this triumphant moment all the trials and worries of our long flight seemed to have been well worth while.

After flying up the Thames as far as Hammersmith, in response to requests by telegram, we turned back and, circling Westminster once more, I prepared to land on the water. It was low tide and the wind was blowing across the river, so that the air was blanketed by the Houses of Parliament. This made our landing rather difficult, so I circled twice to have a look at the proposition. I decided to side-slip in over Westminster Bridge and, having done this successfully, we made a fair landing on the water beyond St. Thomas's Hospital.

Without delay we were taken in tow by a motor boat, and then, a little bewildered, we came ashore and were conducted up the Palace Landing Stairs, so rarely used in history, to the Terrace of the House.

I think it was the proudest moment of my life when I found my wife waiting at the top to greet me.

Then there were Mr. Whitley, the Speaker, Sir Samuel Hoare, Secretary of State for Air, and Sir Sefton Brancker, Director of Civil Aviation, all waiting to receive us; and one who so ardently believes in aviation for the Empire, Sir Charles Wakefield; and again, my old chief, Captain de Havilland, who had designed the aircraft.

We were led to the Terrace where we were officially received by the Lord Chamberlain, and I do not know how Ward and Capel felt about it, but to me it was a very great moment.

I fear that many a clerk was late that afternoon in returning to his office, for all the bridges were massed with white faces looking upwards, and every warehouse had its windows full. As we passed over Blackfriars and Waterloo bridges I looked through to Ward and Capel; they were taking photographs.

All three of us were overwhelmed by such a great reception and I think in this triumphant moment all the trials and worries of our long flight seemed to have been well worth while.

After flying up the Thames as far as Hammersmith, in response to requests by telegram, we turned back and, circling Westminster once more, I prepared to land on the water. It was low tide and the wind was blowing across the river, so that the air was blanketed by the Houses of Parliament. This made our landing rather difficult, so I circled twice to have a look at the proposition. I decided to side-slip in over Westminster Bridge and, having done this successfully, we made a fair landing on the water beyond St. Thomas's Hospital.

Without delay we were taken in tow by a motor boat, and then, a little bewildered, we came ashore and were conducted up the Palace Landing Stairs, so rarely used in history, to the Terrace of the House.

I think it was the proudest moment of my life when I found my wife waiting at the top to greet me.

Then there were Mr. Whitley, the Speaker, Sir Samuel Hoare, Secretary of State for Air, and Sir Sefton Brancker, Director of Civil Aviation, all waiting to receive us; and one who so ardently believes in aviation for the Empire, Sir Charles Wakefield; and again, my old chief, Captain de Havilland, who had designed the aircraft.

We were led to the Terrace where we were officially received by the Lord Chamberlain, and I do not know how Ward and Capel felt about it, but to me it was a very great moment.

At the close of that tremendous day I think I went to bed convinced that at last the public realised the importance of aviation to every Briton, and—what is more—I felt that its imagination was aroused in support of this good cause. I hope I was right.